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# Effectiveness and Feasibility of an Adapted Dialectical Behaviour Therapy (DBT) Program in Singapore: From the Ground Up

Submitted by

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Dr Joanna Barlas and Dr Bridget McConnell provided inputs in designing Study 1 and 3; Dr Joanna Barlas additionally supervised the design and qualitative analysis for Studies 2 and 3, aiding in interpreting the results. Dr Patrick Lin and Dr Bridget McConnell were involved in discussing the interpretation of quantitative results for Studies 1 and 3, with Dr Patrick Lin verifying the data analyses carried out. All advisors (Dr Joanna Barlas, Dr Patrick Lin, Dr Bridget McConnell and Dr Adaline Ng) contributed to reading and commenting on at least one chapter of the thesis, with Dr Joanna in charge of overall direction.

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**Abstract**

Since its formation in 2018, the Institute of Mental Health (IMH) Dialectical Behaviour Therapy (DBT) program has delivered a shortened (12-weekly) DBT skills training group to outpatients who experience difficulties with emotion regulation. Following a temporary pause in 2020 due to COVID-19 disruptions, the program was restarted and underwent further developments. These involved the inclusion of phone coaching, followed by a transition to virtual groups, and another change from closed to open format groups. All changes made were adaptations to standard or comprehensive DBT.

The first two chapters of this thesis provide a background (e.g., on the structure of DBT, on the clinical setting, etc) to the intervention being studied, which is the adapted DBT program at the IMH, as well as a literature review on the vast applications of DBT. Originally designed as a treatment for borderline personality disorder (BPD), the therapy has now been adapted to treat a range of psychiatric disorders apart from or co-morbid with BPD. To investigate the impact of the adapted DBT program as a transdiagnostic treatment for disorders of emotion dysreulgation and feasibility of continuing any DBT services in the local public healthcare setting, three studies were designed as part of this thesis and presented consecutively in Chapters 3, 4 and 5.

Study 1 was a single-group, interrupted time-series study, where participants ($N = 32$) in the program completed self-rated assessments at 11 time points (including assessments upon completion of each core DBT skill module). Only service users who participated in the online groups were sampled. Linear mixed model analyses found that there was a significant main effect of treatment completion on difficulties with emotion regulation (DERS), but not on symptoms of depression and anxiety. There were significant main effects of time across all these measures, and for the DERS, this significant change interestingly emerged in the short-term, that is, immediately after the first skill module. These results were relatively robust when sensitivity analyses were conducted with treatment completers only, and with complete cases only.

Study 2 was a qualitative study exploring the aspects of DBT that participants thought influenced the outcomes of their therapy, and service users who underwent the various iterations of the adapted DBT program (e.g., in-person or online; closed or open groups) were recruited ($N = 26$),

including non-completers of the program. Seven themes were generated from a reflexive thematic analysis – participants spoke about the usefulness of skills and other therapeutic processes that contributed to their therapy outcomes.

Study 3 utilized a mixed-methods sequential explanatory design to explore service providers' opinions of implementing DBT in their unique clinical settings and the contextual barriers to implementation. Quantitative data from an online survey ($N = 21$) was used to design an interview schedule, which 15 participants opted into. Framework analysis yielded four main themes. Finally, integration of both quantitative and qualitative data highlighted the challenges that clinicians attempting to implement new interventions faced in light of systemic difficulties, and that individuals further along in DBT implementation appeared to encounter specific contextual barriers.

Findings from the three studies are synthesized in the concluding chapter of the thesis, chapter 6, which outlines limitations of the research before providing recommendations for practitioners and researchers moving forward.

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# Effectiveness and Feasibility of an Adapted Dialectical Behaviour Therapy Program: From Theory to Implementation

## Chapter 1: Introduction

This thesis delves into the process of implementing a relatively new mental health treatment known as Dialectical Behaviour Therapy (DBT), together with understanding its potential benefits or effects on service users dealing with problems of emotion dysregulation as well as the views of service providers considering adopting it. Although DBT was developed by Linehan three decades ago (1993a), it has not yet been disseminated widely in the Southeast Asian region, as compared to other types of therapies. Through an examination of the effectiveness of an adapted DBT program on clinical outcomes, together with contextual factors shaping the adaptation and implementation of DBT in Singapore, this research aims to develop an in-depth understanding of the specific challenges to DBT implementation in a tertiary psychiatric treatment setting. Through empirical investigation, its results stand to inform best clinical practices and shape policy development in support of establishing specialised mental health services in other countries in the region with similar healthcare systems.

In this first chapter, I introduce the rationale for DBT itself by first discussing the impact of emotion regulation and dysregulation, a transdiagnostic factor that is relevant to several psychiatric conditions. The overarching objectives and significance of the current research studies are laid out. Importantly, background information is provided on the backdrop to the three research studies that make up this thesis, by explaining the national landscape of mental healthcare in Singapore, a country where no standard DBT program is yet available. As a roadmap for the rest of the research endeavour, the thesis structure will be delineated. The second chapter is a theoretical exploration, a literature review outlining the various applications of DBT, which, as will be shown, has increasingly been used to treat several psychiatric conditions. Chapters 3 and 4 present two studies conducted with patients who underwent a DBT intervention delivered locally in a public health institution, employing a quantitative and qualitative approach respectively. Chapter 5 focuses on the perspectives of therapists who were considering implementing DBT, and the barriers they have faced in any efforts to do so, using a mixed-methods approach. The final and sixth chapter synergizes the three studies and

provides a conclusion to my inquiry, including reflections on the future of this treatment in Singapore and proposing methods of overcoming challenges to DBT implementation in specific clinical settings.

**Emotion Regulation**

Emotions play a pivotal role in human experiences, influencing multiple facets of our lives. They function to guide human behaviour according to situational needs and can even signal or communicate important information to others (Gross, 1998; 1999). Related to this, emotion regulation is the individual's ability to manage and alter their own emotional responses, whereby people modulate 'which emotions they have, when they have them, and how they experience and express these emotions' (Gross, 2002) to consciously and non-consciously respond to their environment (Rottenberg & Gross, 2003). Emotion regulation often occurs with the aim of accomplishing goal-directed objectives (Gross et al., 2006) and is crucial to our adaptability by enabling us to function effectively, as social beings.

Since the concept of emotion regulation is being increasingly studied in clinical psychological literature, some researchers have examined overlaps between the different definitions of it that exist (e.g., Gratz et al., 2015; Tull & Aldao, 2015). They highlighted that emotion regulation is referred to as the capacity (or various activities) that enables someone to modify the type and quality of emotion felt, duration of the emotional experience and other ways that their emotions are expressed (e.g., Cole et al., 1994; Larsen & Prizmic, 2004). It involves a series of processes (e.g., biological, cognitive, behavioural, social systems) that organize and modulate emotions (Hilt et al., 2011). Aldao and Nolen-Hoeksema (2013) shared examples of adaptive emotion regulation strategies such as reappraisal, problem-solving and acceptance. However, emotion regulation can be unsuccessful at times, leading people to exhibit unwanted emotions that also generate undesired outcomes.

Emotion dysregulation thus arises when these processes fail to influence emotion in a desired way (Gross, 2014; Neacsiu et al., 2014a), becoming maladaptive especially when a person does not adopt the appropriate emotion regulation strategy for their situation, worsening it instead (Jazaieri et al., 2018). Emotion dysregulation is more commonly understood as the inability, even when one's best efforts are applied, to change emotional cues, experiences, actions, verbal responses, and/or nonverbal expressions in a desired way under normative conditions (Linehan et al., 2015a). It can also

refer to attempts to employ emotion regulation strategies in a maladaptive manner or other challenges with selecting the most suitable strategy to reach intended outcomes (Hilt et al., 2011). Some examples of less effective strategies include denial, rumination, aggression or blaming others, experiential and / or behavioural avoidance, emotional suppression, and so on (Aldao et al., 2010; Aldao & Nolen-Hoeksema, 2012). A newer school of thought is that being able to flexibly utilize any strategy – even what can be considered 'maladaptive' – to fit any given context may be what constitutes successful emotion regulation (Aldao, 2013).

Difficulties with regulating emotions underlie numerous psychiatric disorders (Bradley et al., 2011; Kring & Sloan, 2010), the most notable being borderline personality disorder (BPD; Carpenter & Trull, 2013). Researchers have also highlighted the critical role of emotion dysregulation in other types of personality disorders (Dimaggio et al., 2017), mood disorders (Hofmann et al., 2012), generalized anxiety (Mennin et al., 2005) and other anxiety disorders (Hofmann et al., 2012), posttraumatic stress disorder (PTSD; Tull et al., 2007; Ehring & Quack, 2010), eating disorders (Lavender et al., 2015), substance use disorder (Gratz & Tull, 2010) and even childhood disorders like oppositional defiant disorder (Cavanagh et al., 2014), among others. The use of specific emotion regulation strategies have also been associated with different types of psychiatric disorders (e.g., Aldao et al., 2010), further suggesting emotion regulation and emotion dysregulation serve as transdiagnostic concepts present across various psychopathologies.

**Dialectical Behaviour Therapy (DBT)**

Dialectical behaviour therapy (DBT) is a comprehensive, highly structured treatment created by Marsha Linehan (1993a, 2015a), who originally developed it to treat suicidality as well as severe emotion dysregulation that predicted suicidal and self-injurious behaviour (Linehan, 1981; Linehan, 1993a; Neacsiu et al., 2014a). It is based on dialectical philosophy, i.e., the resolution of two opposite views into a synthesis. The main dialectic in DBT is balancing between changing what is within one's control (consistent with traditional therapies) and acceptance of events or one's inner experiences. With roots in behaviourism, DBT also employs social learning theory and behavioural principles to address clients' problems (Linehan & Wilks, 2015).

Linehan (1993a) conceptualized difficulties with emotion regulation as a consequence of biosocial transactions, according to her biosocial theory. She explained that interactions between biological vulnerability to emotions (a temperamental predisposition characterized by low threshold for emotional responding, heightened emotional reactivity and delayed return to emotional baseline) with an invalidating childhood environment (that does not teach basic emotion regulation skills or invalidates emotional responses) lead to neurobiological malfunction and skill deficits in managing the emotional system. Hence, the primary focus of DBT is helping clients to learn, strengthen and generalize adaptive skills to actively address longstanding emotional dysregulation.

The comprehensive DBT treatment (also referred to as 'standard DBT') consists of four treatment modes i.e., individual therapy, telephone coaching, the therapist consultation team and DBT group skills training (simply referred to as 'skills training'; it is delivered over 26 weeks in standard DBT). In DBT, the treatment environment is structured according to clients' levels of disorder, i.e., the complexity of each case. The standard treatment takes one year, comprising all four treatment modes aimed at fulfilling five main functions, as in Table 1, modified from Koerner (2012, p.19).

**Table 1**

*Modes and Corresponding Functions of Standard DBT*

| Modes | Functions |
|---|---|
| Individual psychotherapy | Improve client motivation to change; structure clients' treatment and natural environments to support client capabilities |
| Group skills training | Enhance client capabilities for regulating emotion effectively (i.e. acquiring skills for effective responding) |
| Telephone coaching | Facilitate generalization/ transfer clients' new capabilities (i.e., skilful responses) to their natural environment in-between therapy sessions |
| Consultation team | Maintain and enhance therapist capabilities and their motivation for treating complex, multi-problem clients; also to structure clients' treatment environment to support client and therapist capabilities |

*Note*. Structuring the environment can occur through additional methods e.g., case management, interactions with administrative or clinical staff (contingency management within the treatment program), and family and couples interventions (contingency management within clients' communities).

### *Individual Psychotherapy*

Individual psychotherapy involves mutual verbal commitment to DBT, including jointly organizing a hierarchy of treatment targets with clients. These are behaviours requiring change (to increase or decrease) and other client goals. Behaviours to decrease are ordered as i) life-threatening behaviours; ii) therapy-interfering behaviours; and iii) quality-of-life-interfering behaviours. Behavioural interventions are used to implement structure, such as tracking target behaviours and emotions using diary cards, facilitating behavioural analyses (termed chain analyses and solution analyses), contingency management, behavioural rehearsal of skills or exposure tasks. Key DBT techniques are commitment strategies to assess and enhance motivation for change, acceptance strategies to strengthen therapeutic alliances, and dialectical strategies to synthesize seemingly opposing views in response to high-emotion situations. These are continually employed in sessions, especially as clients begin applying skills to reduce target behaviours like angry outbursts or substance use.

### *Group Skills Training*

Skills training is typically conducted in groups by two DBT skills trainers, resembling a class (Linehan, 1993b). It equips patients with skills in a psychoeducational manner, freeing individual therapists to flexibly cater sessions to clients' needs. The group setting helps members learn from each other and practice skills when interpersonal situations arise, allowing for immediate coaching on applying what was taught. Four modules of skills are covered, as shown in Table 2.

**Table 2**

*DBT Skills Modules*

| Skills | Goals |
|---|---|
| Mindfulness | Engaging nonjudgmentally with current experience, and becoming aware of emotions, thoughts, and urges. Learning that internal experiences can simply be acknowledged. |
| Distress tolerance | Surviving crises without acting on emotional impulses that worsen the situation. Distracting and self-soothing as needed, together with willingness to accept realities of the situation. |
| Emotion regulation | Directly learning about functions of emotions (why emotions are needed despite being experienced as pain) and methods of changing emotions (decreasing negative emotions and increasing positive emotions). |
| Interpersonal effectiveness | Managing interpersonal conflicts that are often sources of emotional distress, while maintaining self-respect and healthy relationships. |

Consistent with a dialectical stance, mindfulness and distress tolerance are acceptance-oriented, while the remaining two skills are change-oriented. These skills are reinforced through the other modes of DBT.

### *Telephone Coaching*

Through telephone coaching that is offered on an as-needed basis, clients are guided on applying skills in real-time to replace dysfunctional responses in real-life circumstances. This allows generalization of learning beyond therapy settings. Agreements are set beforehand to establish an understanding on when and how calls are made, and time limits of calls. Typically, calls are disallowed for 24 hours after life-threatening behaviours to prevent reinforcing them.

### *Consultation Team*

Finally, DBT therapists join a peer-consultation team, aimed at maintaining therapists' motivation and clinical skills. Consultation teams usually meet weekly and follow a set of agreements surrounding clients, therapists and therapy. Therapists assume different roles during meetings (e.g., rotating leadership), helping each other with case conceptualization and addressing personal difficult emotions and cognitions that may interfere with effective DBT. Clients are not part of these consultation meetings.

Providing all four treatment modes is known as comprehensive or standard DBT. That said, the treatment developer has acknowledged that this cannot always be provided, and 'in principle, DBT can be applied in any treatment mode' (Linehan, 1993a, p.101). The dilemma of whether to adopt standard DBT or adapt components to suit unique clinical settings has been highlighted (Koerner et al., 2007). In many cases, the DBT modes are condensed due to resource- or cost-constraints, or supplemented by ancillary treatments (e.g., pharmacotherapy, involvement of clients' families). Other reasons for modifications to standard DBT or preferred modes of service delivery, such as the need to target specific problems, as will be expanded upon in Chapter 2.

With the full treatment being costly and resource-intensive, many services deliver mainly skills training or even integrate components of it into other therapies (e.g., see Budak et al., 2020 for a narrative review). Studies show the teaching of DBT skills alone to be helpful in improving coping with emotional distress and increasing effective behaviours for individuals with difficulties in managing their emotions (e.g., Stepp et al., 2008). DBT skills training-only, conducted in groups, has led to improvement in symptom severity for a range of psychiatric illnesses and associated conditions, such as depression, substance abuse and dependence, eating disorders, and self-harming and suicidal behaviours (Dimeff et al., 2006; Neacsiu et al., 2010a). Many people living with psychiatric illnesses have demonstrated skills deficits leading to ineffective attempts at coping (e.g., Horwitz et al., 2018; Sinclair et al., 2016). Thus, they stand to benefit from learning alternative, adaptive skills to replace ineffective or even self-destructive behaviours, which is a goal of DBT.

**Mental Health Treatment in Singapore**

As the current studies were conducted in Singapore, a multicultural city state in Southeast Asia with a population of 5.92 million (as of June 2023; Singapore Department of Statistics, 2023), the mental healthcare landscape in the country will be introduced. In the public healthcare sector, hospitals are fully owned by the government state but were restructured to function as a private company in the 1980s (Chong, 2007). The Institute of Mental Health (IMH) is the only tertiary psychiatric hospital in Singapore, with a bed capacity of approximately 2,000 beds across more than 50 wards (IMH, 2023). While several restructured general hospitals and one private hospital also offer psychiatric services, not all of these have dedicated psychiatric wards. The IMH is also the sole

psychiatric institution that may admit patients involuntarily, following the guidelines of the country's Mental Health (Care and Treatment) Act 2008 and Criminal Procedure Code 2010 (Ho et al., 2015). Psychiatric and psychological care is also provided by outpatient polyclinics, private psychiatric medical facilities, other government organizations (e.g., the Singapore armed forces, prison services, child welfare and vulnerable adult protection services, etc), and voluntary welfare organizations who receive government aid.

Psychiatric disorders are pervasive in Singapore. The Singapore Mental Health Study (SMHS) conducted in 2016 revealed that the lifetime prevalence for mental illness in the country stood at 13.9%, with 1 in 7 Singaporeans experiencing at least one mood, anxiety or alcohol use disorder in their lifetime (Subramaniam et al., 2019). In the same study, the lifetime prevalence of Major Depressive Disorder (MDD) was the highest, at 6.3%. These rates appear to be on the rise when compared to statistics reflected in older studies – for example, the 2004 National Mental Health Survey documented lifetime rates of depression and anxiety disorders in Singapore as 5.6% and 3.4% respectively (Chua et al., 2004), while the 2010 SMHS indicated that 12% of adult Singaporeans fulfilled the lifetime criteria for affective, anxiety and alcohol use disorders (lifetime prevalence for MDD was 5.8%; Chong et al., 2012). Comparing the findings between the 2010 and 2016 SMHS, the proportion of respondents who refrained from seeking treatment in the preceding year decreased from 82.1% to 78.4% (Subramaniam et al., 2020). With a combined trend of increasing prevalence and decreasing treatment delays, the public health system in Singapore needs to explore innovative ways to narrow any treatment gaps by providing timely interventions for individuals who need it in order to mitigate the negative effects and burden of mental illnesses (e.g., Evans-Lacko et al., 2018; Subramanian et al., 2020). As DBT focuses on transdiagnostic emotion dysregulation, it may be a suitable intervention to meet a range of treatment needs. As a comprehensive treatment, it may also be able to do so efficiently.

**DBT Implementation in Singapore**

DBT has shown positive clinical outcomes in countries outside the United States of America where it has been widely implemented and researched, such as in Canada, Norway, Australia, Spain, Denmark, and New Zealand (DuBose et al., 2019). Despite such evidence, no services provide full

DBT in Singapore. In the past decade, various efforts have been made to set up adapted DBT programs in Singapore with majority of these programs closing after a few years. At present, few services provide DBT-informed care or modified DBT skills programs. The current research thus involves adapting an empirically-supported group treatment for DBT skills training, to help clients learn the four core skills of DBT, that is, mindfulness, interpersonal effectiveness, emotional regulation and distress tolerance.

At the IMH, a 12-week, transdiagnostic DBT-based program (henceforth referred to as 'IMH [DBT] program' or 'the program') was initially developed between 2018 to 2019 in consultation with Dr. Shelley McMain, Head of the Borderline Personality Disorder Clinic at the Centre for Addiction and Mental Health (CAMH) in Canada, who supervised its delivery from the outset. The program was adapted from the original treatment manual and based on emerging research that found even brief DBT skills training to be beneficial adjunctive interventions – namely, studies by Conrad et al. (2017), Soler et al. (2009) and McMain et al. (2017), who evaluated 10 weeks, 13 weeks and 20 weeks of DBT group skills training respectively. Two pilot trials of the IMH program were first delivered in 2018 and 2019, followed by preliminary evaluation and modification (see Table 3 for more details on the development of this program).

**Table 3**

*Timeline of DBT Program Development at the IMH*

| Year | Developmental Tasks |
|---|---|
| 2017 | Formation of a DBT interest group consisting of three clinical psychologists with postgraduate (placement) training experience in DBT.<br>Understudied an adolescent DBT program at the IMH Child Guidance Clinic by participating in consultation team meetings until its deactivation before 2018.<br>Preliminary program development. |
| 2018 | An associate-level psychologist with no therapy background joined as a fourth member of the founding team.<br>Finalization of group materials for the first run and development of a study protocol, for which ethical approval was obtained.<br>Pilot run of the first DBT skills training (April to June 2018; closed group), which covered three skills modules of mindfulness, distress tolerance and emotion regulation over 12 weeks. The session structure adhered to the manualized format specified by Linehan (1993b, 2015a), with opening mindfulness exercises, homework review, a short break and teaching of new skills. |
| 2019 | Implementation of consultation team by founding members; part of the time was spent on didactics and reading research together as majority of the team was new to DBT. Meeting formats were otherwise adherent to standard DBT.<br>Expansion of the consultation team as new DBT practitioners joined (additional four clinical psychologists and one psychiatrist).<br>A second pilot run of the DBT skills training (April to July 2019; closed group) was delivered, this time covering all four skills modules over 12 weeks.<br>Ongoing program development throughout the year, with changes made to materials after examining outcomes and feedback from the pilots.<br>Individual DBT therapy was increasingly offered post-training, from August 2019. |
| 2020 | An open group was started in January 2020, which was disrupted by COVID-19 in February 2020 (after four sessions); participants completed the remainder of the program via individual skills training in the later part of the year.<br>Telephone coaching was also piloted by four DBT team members; also disrupted in February 2020.<br>Consultation team continued meeting virtually through the COVID-19 pandemic. |
| 2021 | Skills training was restarted after being modified to be delivered online. Three closed groups (January to April 2021; April to June 2021; September to December 2021) were completed.<br>Consultation team increasingly focused interventions on therapist behaviour after completing DBT Intensive™ training in January 2021.<br>Slight changes to program materials (opening Mindfulness exercises) from June to September 2021.<br>Telephone coaching was implemented together with online skills training and has continued since, forming the adapted DBT program with full-mode DBT. |
| 2022 | A closed group was completed (January to April 2021), before an open group commenced in July 2022. |

### *Therapist Training*

From January 2020, eight clinical psychologists at the IMH (seven females and one male) were recruited as DBT skills trainers to deliver the group program on a rostered basis, with each group comprising two trainers and a target of six to 10 patients. All of them also served as individual therapists in the IMH DBT program. They provided this service on top of their regular clinical workload. As DBT was a relatively new treatment in Singapore, most of these psychologists primarily used other treatment approaches in their individual work such as cognitive behavioural therapy or schema therapy, and had non-homogenous experiences with using DBT (e.g., clinical placements during postgraduate training, brief workshops) prior to in-depth DBT training. As with overseas teams that train in DBT, they underwent a DBT Intensive™ Training, which is a model of training developed by Linehan (DuBose et al., 2019) and delivered by Behavioral Tech, LLC, a recognized DBT training provider based in the United States. The training course was delivered in two blocks of five days in August 2019 and January 2021, separated by several months of structured homework assignments focused on implementing a DBT program appropriate for their clinical setting. Due to a global outbreak of the coronavirus disease (COVID-19) and an unprecedented pandemic, the first block of training was held in-person in Sydney, Australia, while the second block was completed virtually.

### *Program Description*

Following consultations with three mentors and trainers from Australia and the United States (these were primarily led by Dr. Anthony DuBose, Chief Training Executive, Behavioural Tech, LLC), the local program was continually revised by the IMH DBT team. The current iteration of the program has been delivered since December 2021. It is targeted at individuals with difficulties regulating their emotions and not limited to persons with borderline personality disorder (a detailed account of the inclusion and exclusion criteria is presented in Chapter 3). The program covers all four modes of the treatment, albeit each with modifications (e.g., in terms of dosage and form) due to resource-related constraints (mainly, manpower limitations) that negated the full adoption of a standard DBT program. Adaptations made to standard DBT are summarized in Table 4 below.

**Table 4**

*Summary of Adaptations Made in the IMH DBT Program, Organized by Treatment Mode*

| DBT Mode | Standard DBT | IMH DBT Program |
|---|---|---|
| Individual Therapy | Conducted by individual (also known as primary) DBT therapist;<br>Weekly, for a year | Conducted by a DBT-trained or non-DBT trained therapist;<br>Minimally fortnightly, therapy length varies and is determined by primary therapist |
| Skills Training | 24-week DBT skills curriculum with four modules that is repeated to create a one-year program | 12-week with selected DBT skills from each of the four modules; no repetition provided;<br>Inclusion of chain analysis (DBT skill), which is usually taught by individual DBT therapists |
| Phone Coaching | Primary therapist is available to provide between-session coaching by phone | A roster of DBT-trained therapists scheduled to provide between-session coaching during working hours;<br>Service is accessed by client sending a text request (adhering to a specific format) for a return call |
| Consultation Team | Weekly for two hours | Fortnightly for one hour |

It should be noted that in order to replicate usual care, patients enrolled in the DBT program received either DBT- or non-DBT-based therapy. This was based on the organization's treatment protocols, given that they were referred by their individual therapist (the referral process is outlined further in Chapter 3). Individual therapy sessions were delivered either in-person, via telehealth or a hybrid. As shown in Table 4, group skills training was shortened to 12 weeks, and the finalized curriculum was implemented in 2021 (see Appendix A, Table A1, for a program outline). All group sessions followed the standard DBT format, consisting of an opening mindfulness exercise, homework review, a brief break followed by teaching of new skills of the week (Linehan, 1993b). With respect to telephone coaching, a subgroup of three to four therapists in the DBT team were rostered to make this mode available for all patients undergoing skills training. Not all of therapists were willing to commit to such coaching because delivery of the other modes of DBT (group skills training, consultation team meetings) were beyond the normal routines of other psychologists. Many

sites describe challenges with implementing this particular mode, often doing so gradually to establish a full DBT program model (Landes et al., 2021). In the IMH DBT team, three additional therapists had trialled being part of this mode for three months each, before deciding to step down and focus on the other three modes. Regarding the consultation team, meetings ran on a fortnightly basis due to scheduling constraints requiring practitioners to attend to other work duties. Appendix B presents a sample page from the DBT Program Fidelity Scale (DBT-Linehan Board of Certification, n.d.), and ratings for the IMH DBT program that were submitted to Behavioural Tech on 25 November 2022 for the purposes of further training.

## Rationale for Thesis

This research is informed by the updated UK Medical Research Council (MRC) guidance on developing and evaluating complex interventions (Craig et al., 2008), which outlines a cyclical process involving four phases of i) systematic development of the intervention, ii) testing feasibility and pilot studies, iii) evaluation of effectiveness and cost-effectiveness, typically through randomized controlled trials (RCT) whenever randomization is possible, and iv) implementation studies to address the dissemination of the intervention when it is integrated into routine practice. Therefore, the current stage of evaluation is to ensure that DBT is well-theorized, developed and that feasibility questions are addressed, in order to prepare for a future definitive evaluation (e.g., RCT). These plans are in line with King et al.'s (2018) suggestion to trial a DBT program in populations where the DBT evidence base is not as robust, in order to collect effectiveness data and reduce barriers to implementation. The three studies follow small pilot studies that were conducted from 2018 and 2019 to finalize the DBT program's design.

### *Aims & Objectives*

The current research has two main aims. Firstly, it examines the effectiveness of an adapted DBT program as a transdiagnostic treatment in an outpatient psychiatric population in Singapore, in terms of improving emotion regulation and DBT-skills use, as well as for reducing psychiatric symptoms connected to emotion dysregulation. The second aim is to examine contextual factors that act as barriers related to implementation, and potentially linked to any variation in outcomes, using the theoretical implementation framework introduced by Toms et al. (2019). This framework will be

elaborated on in Chapter 5. Achieving both aims will involve extensive process evaluations, which is also aligned with recommendations from the MRC (Craig et al., 2008). The long-term objective of this research is to determine the feasibility and effectiveness of offering adapted DBT treatment to outpatients at a psychiatric hospital in Singapore.

These aims will be achieved through three studies, starting with examining changes in clinical outcomes of the DBT-informed program in Singapore. The process of program implementation and delivery will be investigated by interviewing service users and service providers respectively. Study 1 will analyse quantitative data from various clinical measures (e.g., psychiatric symptom severity, difficulties with emotion regulation, and use of DBT skills). Study 2 will analyse qualitative data from patients' perspectives on each of the four DBT modes offered in the program, which have traditionally been neglected in psychotherapy research despite holding critical information about treatment responses that would improve interventions (Elliot, 2008). In Study 3, quantitative and qualitative data will be obtained from clinicians about experiences in DBT implementation efforts in the local context thus far, to capture the different perspectives of stakeholders such as DBT therapists, non-DBT therapists who may co-manage patients undergoing the intervention, referrers (who may or may not be therapy providers) as well as those who have considered implementing DBT in any form.

***Possible Contributions***

Findings from this thesis can potentially contribute significantly to expanding current knowledge on shortened or brief DBT skills training programs (such as the one being studied), informing treatment potential and/or benefits of DBT skills training for common psychiatric symptoms, and understanding the experiences of therapists who are newly trained in DBT and clients who have never engaged in this type of treatment before in order to facilitate implementation effectively. All data obtained will be critical for reviewing the feasibility of DBT in Singapore, and broadening the understanding of the factors that influence treatment outcomes or underlying service delivery. These factors may include individual or client-related factors, therapist-specific factors or factors related to the therapy process, together with systematic or organizational factors influencing implementation of the treatment. This is needed before a full-scale evaluation can be embarked on in the future (Craig et al., 2008).

Such enhancements to current literature on DBT will hopefully aid in increasing effective DBT implementation in newer services in the future, as many clinical settings are choosing to adapt instead of fully adopt the standard DBT treatment, mostly due to logistical and manpower constraints. Should the intervention (i.e., the IMH DBT program) itself be found to be effective, formal or wider implementation can then be considered for it to become a more accessible treatment option in the country. Of course, ongoing and more rigorous evaluations would be a necessary part of the implementation process, and implementation strategies should also be identified. Being able to provide adapted DBT (where standard DBT is not available) may allow for treatment providers to intervene in a timelier fashion to reduce the effects of unhealthy coping that is often used by people seeking psychological help, thereby resulting in a more efficient use of resources within healthcare systems. DBT skills training would also be made more accessible to psychiatric patients with emotion dysregulation, enabling many individuals in need of this evidence-based treatment to benefit from receiving the help that they require.

## Chapter 2: Literature Review

In this chapter, I will present a review of the existing literature on how Dialectical Behaviour Therapy (DBT) has been used with various psychiatric disorders, given that the current DBT program being researched was intended as a transdiagnostic treatment for psychiatric outpatients with emotion regulation difficulties. As a well-established evidence-based treatment, DBT has become the standard of care in treating borderline personality disorder (BPD; National Institute for Health and Clinical Excellence, 2009; Oldham et al., 2010), a condition that is characterized by emotion dysregulation. Older studies on DBT investigated different co-occurring disorders in populations with BPD – likely because individuals with BPD also frequently meet diagnostic criteria for other psychiatric conditions (Ritschel et al., 2015). For example, Harned et al. (2008) studied the effects of a year of DBT with a sample of 101 suicidal females with BPD who also had co-morbid diagnoses of depression, panic disorder or other anxiety disorders, substance dependence disorders, posttraumatic stress disorder or any eating disorder. Compared to a control condition comprising community treatment by experts, there were significant improvements in co-occurring substance dependence in terms of full or partial remission. Similarly, Palmer et al.'s (2003) study sampled seven women with both BPD and a co-morbid eating disorder (ED) who spent 6 to 18 months in a full DBT program and found reductions in self-harm and remission in ED symptoms.

More recently, and in line with growing research, DBT has been adapted for treating various psychiatric disorders that, as mentioned in Chapter 1, stem from difficulties with regulating emotions. As such, newer studies have begun investigating DBT's application as a transdiagnostic treatment for emotion dysregulation (e.g., Budak et al., 2020; Neacsiu et al., 2014b; Ritschel et al., 2015). This is of significance to the current thesis that focuses on a new DBT program (intended to be transdiagnostic) being implemented in Singapore, because the mental disorders of interest reported in the most recent Singapore Mental Health Study (Subramaniam et al., 2019) share a commonality of emotion dysregulation. It is hoped that any implications of the research findings could potentially impact a wide target group of patients with various psychiatric concerns.

### Rationale of the Present Review

Despite a strong theoretical rationale for transdiagnostic applications of DBT (e.g., Sloan et

al., 2017b), a systematic review examining the impact of DBT on reducing emotion regulation difficulties across 14 studies interestingly found mixed results (Harvey et al., 2019). The authors pointed out that there was high variability across different DBT programs (especially programs that were not delivering full DBT), and that participant engagement and DBT adherence were often under-studied. As such, increased understanding of non-standardized DBT, especially its direct effect on psychiatric symptoms, can lend insights into the ongoing program evaluation and continual development or implementation of DBT at the IMH and in the wider treatment landscape in Singapore.

To investigate the transdiagnostic applicability of DBT, I conducted a narrative review aimed at presenting a summary of various DBT formats used to treat different psychiatric problems apart from BPD. BPD is not reviewed here, as it has traditionally received the most attention from scholars (e.g., see Panos et al. 2014) and information on DBT's efficacy and effectiveness with this condition is readily available. Originally, a scoping review was planned for (see Tan et al., 2022, for a study protocol). Due to time constraints following the impact of COVID-19 on the other studies, as well as the growing size of the literature field being reviewed, it was not possible to continue with the scoping review during the candidature period. As this review was not systematically conducted, the findings will therefore be presented narratively and DBT adaptations will be discussed more broadly.

It was found that there were a large number of different outcome measures used to assess symptomatology of each psychiatric disorder (Tan et al., 2022). These commonly included self-report measures or clinician-administered measures for psychiatric symptoms, as well as recurrence and remission rates. However, listing all of the measures employed is not the focus of this review.

**Method**

The method for this review was largely based off the protocol by Tan et al. (2022), and is summarized in this section. The main research questions are:

1. What formats of DBT have been used to treat common psychiatric problems in clinical services?
2. What impact has been reported for these DBT interventions on symptoms of the specific psychiatric condition that it was adapted for?

***Search Strategy***

The Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, PsycINFO, SCOPUS, EBSCOhost were the electronic databases searched for peer-reviewed articles published in English. Grey literature, such as theses and conference presentations, were excluded. The search strategy comprised of using keywords related to the names of common psychiatric disorders (e.g., 'ADHD', 'depression', and so on) together with the treatment approach (e.g., 'DBT', 'dialectical behavio(u)r therapy'). Systematic reviews and meta-analyses were manually reviewed (e.g., hand-searches of reference lists) to identify articles not captured in electronic databases searches.

In terms of the selection criteria, only empirical studies were included, with or without comparison groups in the study (this differs from the published protocol, where studies needed to contain a comparison or control group in order to meet inclusion criteria). Purely qualitative studies were excluded. I examined participants of all ages undergoing adapted DBT in any clinical or health setting, including community treatment settings. Correctional settings, where the treatment targets tend to be offending behaviours rather than psychiatric symptoms, were not included. An intervention qualified as a DBT intervention as long as it employed at least one or more of the four DBT treatment modes, albeit modified. This included, for example, shortened group or individual skills training, or phone coaching provided by a crisis team on duty instead of an individual therapist. Research on integrative therapies, such as other kinds of established therapies that merely incorporated single DBT interventions (e.g., mindfulness) were excluded.

Arguably, one of the best-known DBT adaptations tailored the therapy to 13- to 19-year-old suicidal adolescents with BPD traits, known as DBT for Adolescents (DBT-A; Miller et al., 2007). As this thesis focuses on DBT for adults and this review is aimed at summarizing the impact of DBT-interventions on specific types of psychiatric problems, a standalone review of DBT-A will not be conducted. However, DBT-A will be discussed where it was applied to treat some of the disorders being examined. For example, DBT-A was modified to treat youths with bipolar disorder. This type of adaptation that is based on DBT-A should be distinguished from other DBT programs adapted for a specific condition and recruiting adolescent participants.

The search was conducted in early 2020, and repeated in end 2023, where it was found that

new systematic reviews and/or meta-analyses had been conducted over the recent years. Where relevant, these systematic reviews will be brought to attention, as the studies included in them were examined more closely for the present narrative review. Publications after 2023 are not reported in this review.

### *Data Synthesis*

Key findings from the DBT evidence base, organized by psychiatric condition, are outlined below. A final summary of all the types of DBT in this review is presented in Appendix C. To answer my research questions, findings are organized in the following format. Firstly, any known modifications to standard DBT that are described in the included studies will be summarized (see Appendix D for details regarding the various adaptations or modifications made in each study). Secondly, the results of the included studies will be synthesized.

I am especially interested in empirical support for DBT effecting change in symptom severity for a range of psychiatric conditions (and not just on emotion regulation per se, as this has been reviewed in-depth elsewhere; e.g., see Harvey et al.'s [2019] systematic review on the effectiveness of DBT on emotion regulation difficulties measured using the Difficulties with Emotion Regulation Scale [DERS]; Gratz & Roemer, 2004). The effects of DBT on the symptomatology of a specific condition will be summarized.

## Results

DBT was found to have a wide range of applications. The following applications of DBT are reviewed by condition in alphabetical order – attention deficit/hyperactivity disorder, autism spectrum disorder, affective disorders (inclusive of depression and bipolar disorders), eating disorders, intellectual disability and developmental disorders, posttraumatic stress disorder, psychosis, substance use disorder and trichotillomania.

### *Attention Deficit/Hyperactivity Disorder*

Attention deficit/hyperactivity disorder (ADHD) and BPD share a 'substantial clinical overlap' across symptoms of impulsivity, irritability, mood lability, etc (Prada et al., 2014). It is of no surprise that researchers and clinicians adapted DBT to suit the needs of this population, from as early as in 2002. A qualitative narrative review found eight controlled studies on DBT for ADHD (Ulusoy

& Bilican, 2022), and results from a multicentre RCT have been published since then (Halmøy et al., 2022).

**DBT-Intervention and Adaptations.** A 13-week group program was first authored in Germany by Hesslinger et al. (2002; see 2004 for a manual/workbook) that consisted of 2-hour sessions covering topics related to the core symptoms of ADHD e.g., impulse control, substance dependency (a common comorbid difficulty). It was adapted into a Swedish context (Hesslinger et al., 2010; Hirvikoski et al., 2011) that extended the program to 14 sessions. Others continued to implement this program over the years – for example, Edel et al. (2017) referred to it as 'the Freiburg program' or 'skills training group (STG)'. Meyer et al. (2019; 2022), who referred to it as a 'structured skills training group (SSTG)', modified it to suit an adolescent population. As such, this adaptation has been widely disseminated across multiple sites. One of the largest studies of this treatment, a four-armed randomized clinical trial involving 433 participants across seven German study centres (Philipsen et al., 2015), called it a 'cognitive behavioural group psychotherapy' without mention of DBT in the main article; closer examination of the study protocol and supplementary material showed that the skills taught in the program were drawn from DBT and that group sessions were also conducted according to the DBT skills training format. Philipsen et al. (2015) documented that their program was, like the aforementioned studies, based on Hesslinger et al.'s (2002) and Hirvikoski et al.'s (2011) protocols, and modified it such that participants underwent 12-weekly group skills training sessions, followed by 9 additional monthly group sessions to consolidate learning (with repetition of selected topics), and a final, 22$^{nd}$ session. In recent years, the program was adapted in Brazil (Moritz et al. [2021], who translated it and added Brazilian Portuguese DBT worksheets [Linehan, 2015b]) and Norway (Halmøy et al., 2022). The latter added on 15–20-min individual coaching sessions after each group session to increase homework adherence.

Two other studies employed different adaptations that were not linked to Hesslinger's et al.'s (2002) protocol. The first was developed by Fleming et al. (2015) for treating ADHD in college students in the Pacific Northwest. The adaptation consists of nine 90-minute group sessions and a booster session, with the first session incorporating a group orientation and the last few sessions for review and maintenance. For 15 minutes before each group session, individual meetings were

conducted to increase or enhance motivation, and a total of seven phone coaching calls (each 10 to 15 minutes) were provided weekly, in between group sessions. The second adapted program was delivered in an outpatient unit in Sweden that offered a month of intensive or daily DBT (I-DBT; i.e., full DBT with some modifications to each mode; see Appendix D for more information) to clients with BPD (including a subgroup with co-morbid ADHD) who either did not respond to or complete a one-year standard DBT program (Prada et al., 2015).

**Outcomes.** The earliest German study (Hesslinger et al., 2002), where 8 participants underwent an exploratory pilot, showed improvements in terms of ADHD severity and comorbid depression with large effect sizes of 1.35 to 2.22. However, the control group was compromised by a high dropout rate (4 out of 7). A subsequent open multicentre study (Philipsen et al. 2007) replicated these positive findings in 72 patients with ADHD (66 completers) across four treatment sites. More recently, Edel et al. (2017) utilized a pragmatic open design to compare this DBT treatment to a mindfulness-based training group (MBTG). ADHD symptoms decreased similarly in both treatments (MBTG: $d$ = 0.26 for MBT; DBT: 0.49). The authors hypothesized that this could be partially because of a higher BPD comorbidity in the MBTG group and greater reductions in ADHD symptoms were evident in participants with BPD comorbidity across both groups; this distribution was not controlled for due to non-randomization in the study.

An RCT in Sweden (Hirvikoski et al., 2011) found ADHD symptom reduction in the DBT group only ($n$ = 26) and not in controls ($n$ = 25), $\eta_p^2$ = .11, $d$ = .57. The two groups did not differ in changes on depression, anxiety and sleep problems. Following which, an open feasibility study in Sweden (Morgensterns et al., 2016) on 98 participants receiving DBT documented significant reductions in ADHD symptoms and ADHD-related functional impairment, $\eta_p^2$ = 0.16–0.20. Morgensterns and colleagues (2016) found significant changes on depression ($\eta_p^2$ = 0.14) but not on anxiety symptoms. In another Sweden-based study, Prada et al. (2015), examined the effects of I-DBT on three comparison groups (patients with BPD, patients with BPD and ADHD on methylphenidate hydrochloride (MPH), and patients with BPD and ADHD without any stimulants; $n$ = 76, 24 and 23 respectively). They found significant between-group differences in treatment response, in favour of DBT + MPH with respect to ADHD severity, impulsiveness, depression and anger expression. Their

results supported the augmentation of DBT with MPH.

Another German trial that examined the additional/adjunct role of medication was conducted by Philipsen et al., (2015) where the year-long DBT program comprised weekly group DBT skills training in the first three months, which was then tapered down to monthly. They were randomized into one of four treatment groups – DBT + MPH ($n$ = 107), clinical management (CM, which included individual counselling) + MPH ($n$ = 110), DBT + placebo ($n$ = 109), and CM + placebo ($n$ = 107). They found no significant differences after three months of treatment between those who received DBT versus those who received CM with regards to ADHD symptoms; MPH was superior to placebo. Nevertheless, the DBT groups rated their well-being significantly better across all assessments over 52 weeks. Moritz et al. (2021) replicated Philipsen et al.'s (2015) findings in Latin America, albeit in a much smaller RCT, where a 12-week DBT skills training group ($n$ = 16) showed no significantly higher improvement in ADHD symptoms compared to treatment-as-usual (TAU; $n$ = 15).

None of these studies specifically examined emotion regulation, until Halmøy et al. (2022), who found no between-group differences between a 14-week DBT group and TAU on the DERS, although scores for both groups continued to decrease by the 6-month follow-up. The DBT group however did show a significant improvement on ADHD severity compared to TAU, as well as on secondary outcomes including depression severity and tests of executive functioning. Fleming et al.'s (2015) DBT program also found greater executive functioning improvements in DBT compared to a control group who received skills handouts; importantly, the DBT group showed significant greater improvements in ADHD inattention by the follow-up (there were no significant between-group differences at post-treatment).

The only trial on adolescents (Meyer et al., 2022) was conducted in Sweden, and found no differences between a DBT group and an active (psychoeducation-based) control group on ADHD symptoms or other outcome measures, although a within-group decrease in ADHD symptoms were reflected in the DBT group.

In summary, the various names that DBT has been called (e.g., 'SSTG' [Meyer et al., 2022] or DBT-based group treatment [Halmøy et al., 2022]) seem to reflect the authors' efforts to

distinguish their programs from standard DBT, given that these adaptations may combine components of DBT with elements of traditional CBT. Edel et al. (2017) stated that third-wave therapies for ADHD still require further testing. It is possible that different treatments, or even different skills derived from DBT, may be needed to target different features of ADHD such as inattention versus impulsivity or hyperactivity.

### *Autism Spectrum Disorder*

A scan of the literature yielded more concept papers (e.g., Hartman et al., 2012; Mazefsky & White, 2014; Sakdalan & Maxwell, 2022) than empirical studies; these discussed the potential of adapting DBT for autism spectrum disorder (ASD) and the applicability of DBT skills such as emotion regulation or interpersonal effectiveness in consideration of deficits in these areas shown by this clinical population. It was only in recent years that more trials have been published, and a multicentre randomized controlled trial (RCT) on ASD with suicidal and/or self-destructive behaviours was also registered in the Netherlands (Huntjens et al., 2020) but its results have not yet been disseminated.

**DBT-Intervention and Adaptations.** Hartmann et al. (2019) ran a 12-weekly, 90-minute DBT- and CBT-informed group intervention for adults with autism targeting emotion regulation and social communication at an outpatient community clinic in the United States. Every session involved a 3- to 5-minute opening mindfulness exercise, 20- to 30-minutes didactic teaching of skills (sessions 3–7 focused on anxiety, while sessions 8–10 focused on anger), a social break, 45- to 60-minutes of practice (on emotion regulation and social interaction via in-vivo and imagined exposure) and a cool-down period using video clips. Handouts and worksheets were revised to be ASD-specific. Also in the United States, Ritschel et al. (2022) ran a longer DBT skills training program for 24 sessions, but did not describe the session outline or content in detail, although they reflected on specific modifications to DBT skills for ASD such as making abstract concepts more concrete through hands-on activities and visual supports, aligning materials and activities with the individual's special interests where possible, and simplifying handouts to minimize overstimulation. In France, a DBT program incorporated 18 weeks of weekly skills training (2h 15mins each; 16 sessions and 2 debriefing sessions held mid- and end-of-therapy), weekly individual therapy (1h), telephone coaching, weekly

therapist consultations (2h) (Bemmouna et al., 2022).

A single study on Radically Open DBT (RO-DBT; which will be discussed further under the sections on Depression and on Anorexia Nervosa) for a mixed diagnostic group, including people with ASD, was published in northern England (Cornwall et al., 2021). The authors acknowledged that their 30-week group skills training program was a variation to the standard RO-DBT approach (e.g., individual sessions could not be provided due to resource constraints).

**Outcomes.** The first study was an exploratory research study using a single-subject design (Hartmann et al., 2019); 7 participants demonstrated significant improvements on self-ratings of social communication and interaction, social awareness and social cognition, but not on other measures of emotion regulation, social phobia and aggression. As Ritschel et al. (2022) conducted a feasibility study ($n$ = 16 across 4 treatment sites), they did not report any measures of core symptoms of ASD but rather focused on attendance rates and participant satisfaction levels. The feasibility study conducted in France for adults with autism, but without ID, exhibiting self-harm and/or suicidal behaviours ($n$ = 7) utilized a mixed-methods design, mean DERS scores decreased significantly and was maintained at a 4-month follow-up (Bemmouna et al., 2022).

With regards to RO-DBT, 23 out of 48 patients in Cornwall et al.'s (2021) program had an ASD diagnosis. Treatment completers with ASD ($n$ = 11) showed significantly better outcomes on ratings of global distress than those without ASD ($n$ = 12).

It is clear that evaluation is lacking in DBT for individuals with ASD. Interestingly, studies with this population recruited participants with an even gender mix (57% male in Bemmouna et al. [2022] & Hartmann et al. [2019]; 43.8% male in Cornwall et al. [2021]; 77% male in Ritschel et al. [2022]), as many other DBT studies have a disproportionately higher number of females (Wupperman & Edwards, 2017). However, this made sense given the relative higher proportion of ASD diagnoses in males to females (e.g., Loomes et al., 2017). It seems that this therapy is also considered more for individuals with more severe emotional dysregulation, as evidenced by the high number of psychiatric comorbidities (e.g., 87% participants in Cornwall et al.'s [2021] and more than 69% Ritschel et al.'s [2022] study samples reported co-occurring diagnoses) and use of suicidal behaviours as an inclusion criteria for half of these studies. Future studies could possibly define and track autism-specific

symptomatic changes as primary outcome measures, to ascertain the impact of DBT for this population.

### *Affective Disorders*

**Depressive Disorders.** Some studies (e.g., Harley et al., 2008; Lynch et al., 2007; Webb et al., 2016) have shown DBT skills training to be useful for treating depression as a primary treatment target. Out of Lynch and colleagues' (2007) early work, a different adaptation, Radically Open Dialectical Behaviour Therapy (RO-DBT; Lynch et al., 2015a; Lynch, 2018b) was developed.

RO-DBT is thus discussed at length here because the strongest evidence for RO-DBT comes from a three-site trial in the United Kingdom involving 250 patients with refractory (also known by clinicians as 'treatment-resistant') depression (Lynch et al., 2018; see Lynch et al. [2015b] for a study protocol).

It should be noted that other studies measured effects of DBT on depressive symptoms as a secondary outcome, and these are not presented in detail here. For example, Courbasson et al. (2012) compared DBT and treatment-as-usual for concurrent eating and substance use disorders up to a 12-month follow-up, and reported significant positive effects on depression.

***DBT-Intervention and Adaptations.*** No study provided comprehensive DBT. Only Lynch et al. (2007) delivered 3 out of 4 treatment modes of DBT (skills training, telephone coaching and individual therapy) over 2 studies. The biosocial theory (Linehan, 1993a) was modified in their study, because they viewed emotion dysregulation as less salient in older adults with depression than in younger patients with BPD. Elsewhere, Lynch and Cheavens (2007, 2008) expounded on a version of DBT for treating depression and comorbid personality disorders ($DBT^{D+PD}$), which eventually formed RO-DBT (Lynch 2018a, 2018b), a fully-manualized, transdiagnostic treatment for disorders characterized by emotional over-control, i.e., a maladaptive, over-regulated coping style. In addition to Lynch's work, Webb et al. (2016) integrated DBT skills with other therapies, namely Cognitive-Behavioural Therapy (CBT) and Acceptance & Commitment Therapy (ACT). They did not deliver a fixed number of skills training sessions to every participant.

*Adaptations in RO-DBT.* I elaborate on RO-DBT in this subsection, as it has been further adapted for specific disorders (such as ASD, as mentioned earlier). Presenting as cognitive-

behavioural rigidity, emotional inhibition, hyper-perfectionism, and over-tolerance of distress, over-control represents the other dysfunctional extreme of emotional dysregulation or 'under-control' (Hempel et al., 2018a; Vanderbleek & Gilbert, 2018). It is associated with treatment-resistant depression and anxiety disorders (e.g., social anxiety disorder), personality pathology (e.g., obsessive-compulsive personality disorder [OCPD]), and anorexia nervosa (AN). RO-DBT maintains all functions and therapy modes of standard DBT, but targets 'social signalling deficits' (Lynch et al., 2015a) leading to social isolation. RO-DBT's modified-biosocial theory (Lynch, 2018b) identifies emotional loneliness, not emotion dysregulation, as the core difficulty for over-control. Interactions between temperamental biases (heightened threat sensitivity) and punitive environments (where mistakes were perceived as intolerable) resulted in habitual suppression of emotions, leading others to perceive the over-controlled individual as incongruent. Both parties withdraw in social interactions, where suppression reinforces ostracism. RO-DBT skills thus focus on teaching clients on how to be more open, spontaneous and vulnerable in emotional expression and social communication. A fifth module for radical openness skills, spanning over eight lessons, teaches clients how to surrender their preconceptions about how things 'should be' in order to adapt to an environment that is constantly change-filled (Lynch, 2018a).

***Outcomes.*** Findings from non-RO-DBT studies will be summarized first, followed by a short sub-section on the RO-DBT RCT. Two of these studies utilized control groups, one of which received no interventions (Harley et al., 2008). Among 24 outpatients with treatment-resistant depression, participants randomly allocated to 16 weeks of DBT skills training experienced significantly greater alleviation of depressive symptoms than wait-list controls (Cohen's $d$ = 1.31–1.45; Harley et al., 2008). On the other hand, there were no statistically-significant differences on self-reports between groups in Lynch et al.'s (2007) randomized trial, who evaluated the treatment by examining remission of depressive symptoms through two studies. However, remission criteria differed (different score cut-offs) in studies 1 and 2. In study 1 involving 34 chronically depressed older adults (aged 60+ years), 28 weeks of antidepressant medication combined with two DBT modes (skills training and telephone coaching) was superior to medication alone for post-treatment remission of depression (71% versus 47%) and this achieved significance at the 6-month follow-up (75% versus 31%). In their

second study, 35 adults (aged 55+ years) who were unresponsive to medication, with major depressive disorder (MDD) and various co-morbid PDs, were randomized to 24 weeks of medication or medication and DBT (skills-training and individual therapy). The latter achieved higher and faster remission of MDD (71% versus 50% at post-treatment), but differences levelled off after 6 months (59% versus 64% were in remission).

The within-subjects study sampled 173 psychiatric inpatients with MDD who attended daily 'CBT-based, ACT-based, and DBT-based group programs' (see Appendix D for details on the latter, which referred to DBT group skills training) during their short-term admission (Webb et al., 2016). A measure of DBT skills use did not predict depression symptom improvement, but did so for anxiety symptoms. However, because participants attended all treatments, making it unclear whether any differences could truly be attributed to DBT alone. Participants also displayed high diagnostic comorbidity (61.3% of the sample met criteria for anxiety disorders; others posttraumatic stress disorder, obsessive compulsive disorder, alcohol abuse or dependence, and likely BPD), making the exact impact of DBT on depression unclear.

*Outcomes of RO-DBT.* A multi-site RCT in the U.K. targeting over-control in refractory depression compared RO-DBT to TAU in 250 chronically-depressed patients who were non-responsive to medications (Lynch et al., 2018; Lynch et al., 2020). Participants with co-morbid diagnoses that indicated under-controlled difficulties, such as Cluster B personality disorders, bipolar disorder, substance use disorders, or psychosis, were excluded. Results at 7 months showed that participants randomised to RO-DBT ($n$ = 162) displayed significantly greater decline in the primary outcome of depression ($d$ = 1.03), with significantly higher psychological flexibility and emotional coping, as compared to TAU. Between-group differences in depression lost significance afterwards ($d$ = 0.41 and $d$ = 0.32 at 12 and 18 months respectively) although depression scores were still reduced from the baseline. Partial-remission was non-significantly higher in RO-DBT, although full remission rates for both RO-DBT and TAU were low.

Taken together, the studies on depression suggest that DBT skills can be effectively applied for outpatient treatment of chronic depression, but less so for severe depression in inpatient settings that may require other acute interventions, like behavioural activation. The latter was more helpful for

persons with higher pre-treatment depression in Webb et al's (2016) study. Suitability of DBT may depend on the stage of illness, but thus far, Lynch et al.'s (2007) moderation analyses found no statistically significant differences between gender, number of co-morbid disorders, age of onset of depression, number of past depressive episodes, and previous anti-depressant use.

***Bipolar Disorder***

A systematic review on DBT-interventions for bipolar disorders examined the treatment's effects on mood symptoms across six RCTs and five observational studies (Jones et al., 2023). When the 10 included publications were individually examined, it was found that one RCT and one proof-of-concept open trial studied a 'positive emotion regulation group treatment' and an 'integrative approach' that incorporated content related to mindfulness, psychoeducation, cognitive strategies, etc. Both of these articles made no mention of DBT, and thus are not discussed below. Nevertheless, the results of the systematic review suggest that DBT may be promising as an adjunct to or in combination with pharmacotherapy – the majority of the studies reported that participants were administered both treatments.

***DBT-Intervention and Adaptations.*** All studies employed group skills training, with one additionally offering weekly telephone check-ins utilized by 23 (out of 37) participants at least 3 times each (Eisner et al., 2017) and two others (investigating a program that they named as 'Therapy for Inter-episode Mood Variability in Bipolar Disorder [ThrIVe-B]') offering the use of a smartphone application and short individual sessions (Wright et al., 2020; 2021). Only a study that sampled younger participants (Goldstein et al., 2015) provided all DBT-A modes, but significant modifications were made to session frequency, to deliver interventions over 36 sessions (weekly in the first 6 months, then tapered off). Their version of DBT also involved delivering skills training sessions to the individual family unit.

Majority of the studies offered 12-session skills groups to adults with bipolar disorder, where a significant proportion of time was spent on intensive psychoeducation about the disorder (i.e., Afshari et al. [2020]; Esiner et al. [2017]; Van Dijk et al. [2013]; Zargar et al. [2019]). Skills training in Eisner et al.'s (2017) study covered only 3 out of the 4 core DBT skills, while Afshari et al.'s (2020) intervention focused mainly on distress tolerance and emotion regulation skills. ThrIVe-B

provided 16 sessions (Wright et al., 2020; 2021) – in the first open trial, two booster sessions were delivered after program completion; in the second randomised, controlled feasibility trial, one booster session was included but participants were also offered an additional session for family or friends midway through the program).

***Outcomes.*** With regards to the effects of DBT skills training, findings appear to be mixed. The first study in Canada employed a control group but had a small sample size ($n$ = 26; Van Dijk et al., 2013). Mean scores on depression between groups significantly differed at post-treatment but also at baseline, possibly signalling unsuccessful randomization. Although depressive symptoms showed a greater reduction in the intervention group, it was non-significant; furthermore the severity of manic symptoms did not decrease. In the second US-based study involving 37 adults (Eisner et al., 2017), repeated-measures mixed models showed positive changes in skills use (e.g., $d$ = 1.45 on mindfulness) and psychological well-being ($d$ = 1.47), but not in depressive and manic symptoms, possibly due to floor effects and low baseline levels. Zargar et al. (2019) found contrasting results in an RCT in Iran that compared DBT as an adjunct (to routine medications) with routine medications ($n$ = 25 in each group); there were significant reductions in mania (and significant between-group changes) but not in depression after DBT. Also in Iran, it was found that compared to wait-list controls, participants who underwent the 12-week group showed improvements in bipolar disorder symptoms (depression and mania), emotion regulation, mindfulness and other areas of executive functioning like cognitive flexibility, planning and problem-solving (Afshari et al., 2020).

The treatment closest to standard DBT for bipolar disorder was an RCT for 20 adolescents by Goldstein et al. (2015), in the United States. This followed two earlier trials of the adaptation in 2007 and 2011. The one-year treatment resulted in significant improvements in depressive symptoms compared to TAU ($d$ = 0.98). There were no between-group differences for manic symptoms or emotion dysregulation, although the DBT group showed improvements. Uneven distribution among treatment and TAU groups was noted, with only 6 people assigned to TAU. Wright et al. (2020; 2021) emphasized that their studies were designed to look at feasibility and not to test efficacy, although their second study utilized random assignment to the intervention (ThrIVe-B) or TAU. They found some differences between groups on the Bipolar Recovery Questionnaire at the 9-month mark,

favouring the intervention group, but minimal differences on measures of depression.

Jones et al. (2023) stated that all but one study were designed as pilot or feasibility trials, with small sample sizes between 10 to 108. Based on the extant literature, it seems that DBT has limited effect on mania. Reasons for this cannot be determined given the small-scale evaluations. However, mania should be a key treatment target in bipolar disorder, particularly in bipolar I, which shows more severe manic symptoms than bipolar II (American Psychiatric Association, 2013). Possibly, due to the time spent on in-depth psychoeducation of the bipolar diagnosis in some of these adaptions, there were insufficient opportunities for participants to grasp important DBT concepts and skills. Given the demonstration of effectiveness in the adolescent population on depressive symptoms, it would be helpful if the potential of DBT is explored further in adults, and perhaps via lengthened treatments to ensure sufficient time for skills acquisition, since the DBT-A intervention was much longer in duration (Goldstein et al., 2015).

***Eating Disorders (EDs)***

DBT for eating disorders (EDs) has been more extensively researched, with adaptations for different types of EDs, most notably binge eating disorder (BED) and bulimia nervosa (BN). Bankoff et al.'s (2012) systematic review of DBT for treating all ED types synthesized results from 4 uncontrolled studies for co-morbid ED and BPD, and 9 studies on AN, BN, and/or BED without BPD. Overall, DBT led to a reduction in ED symptoms and increased abstinence from bingeing and purging behaviours.

More recently, a review was released on DBT adaptations for EDs in adults by Ben-Porath et al. (2020) and a systematic review and meta-analysis by Rozakou-Soumalia (2021) reported on several newer RCTs and uncontrolled trials on DBT with mainly BED or BN (only one non-randomised control trial sampled a combination of persons with BN, AN or EDNOS with co-morbid BPD; Navarro-Haro et al., 2018; 2021) since the Bankoff et al. (2012) review. Ben-Porath and colleagues (2020) identified that research in the last two decades generated three adaptations of DBT for EDs, namely i) the Stanford Model; ii) Multidiagnostic ED-DBT (MED-DBT); and iii) RO-DBT which was studied in persons with AN. These models are discussed below, under the subsections for each ED type.

**Anorexia Nervosa (AN).** There were two open trials conducted on RO-DBT, an adaptation that was discussed earlier, for AN in inpatient (Lynch et al., 2013) and outpatient settings (Chen et al., 2015). These were conducted in England and United States respectively. Three other non-RO-DBT studies recruited mixed samples, i.e., AN and BN in Germany (Salbach-Andrae et al., 2008), AN or BN with co-occurring BPD also in Germany (Kröger et al., 2010), as well as AN, BN or EDNOS with co-occurring BPD in Spain (Navarro-Haro et al., 2018). The latter is also connected to a six-year follow-up study that did not introduce any new intervention (Navarro-Haro et al., 2021). Chen et al.'s (2015) sample, although purely AN, were also mixed due to the nature of the disorder – some presented with the binge-purge subtype (AN-BP) or restricting subtype of AN (AN-R); others had co-occurring PDs or other disorders. As such, although participants across these studies were primarily female (e.g., 45 out of 47 in Lynch et al.'s [2013] study; 100% female in Navarro-Haro et al's [2018] study), they were heterogenous in terms of clinical presentation and other demographics, with one study conducted with adolescents (Salbach-Andrae et al., 2008) and another with adult inpatients (Kröger et al., 2010).

***DBT-Intervention and Adaptations.*** One study examined shortened (6 months instead of a year) standard DBT compared to TAU / CBT (Navarro-Haro et al., 2018), although it should be noted that treatment were conducted in either an outpatient or day hospital treatment setting (standard DBT is usually an outpatient treatment). Those attending the latter received other ancillary interventions, such as eating and bathroom scheduling and a CBT-based problem-solving training group. Elsewhere, different modifications to DBT were made depending on clients' needs, e.g., session frequency was tripled in an inpatient setting (Kröger et al., 2010), skills training was conducted individually in one outpatient clinic (Chen et al., 2015), and there was even an addition of a fifth skills module on self-management and ED-specific interventions like meal planning and weight restoration (Kröger et al., 2010). Adaptations also followed research-based recommendations, such as extending the treatment duration (from 16 weeks in standard DBT-A, to 25 weeks) in Salbach-Andrae et al.'s (2008) program in view of high relapse rates in AN and BN (Steinhausen, 2002). Similar to DBT for BPD, all studies determined treatment targets for participants depending on the severity of behaviours.

*RO-DBT.* While Lynch et al. (2013) modified the hierarchy of treatment targets to target

therapeutic alliance-ruptures over therapy-interfering behaviours, Chen and colleagues (2015) did not. They followed standard DBT more closely but incorporated the radical openness module from RO-DBT. Weight-loss problem behaviours were addressed case-by-case, and interventions depended on where these fell in the target hierarchy, i.e., life-threatening behaviour (restricting food intake where medically unsafe), therapy-interfering behaviour (refusal to be weighed), quality-of-life-interfering behaviour (avoiding food-related social events). This approach is similar to earlier efforts to apply DBT for AN and BN (e.g., Wisniewski & Kelley, 2003).

***Outcomes.*** Among the earliest, non-RO-DBT studies, a case series (Salbach-Andrae et al., 2008) showed that only one participant with AN-BP (out of 6 with AN) met DSM-IV criteria for the disorder following treatment; five others had no ED. Full remission of AN-R was contrasted with no remission among BN patients ($n = 6$), which could be due to the latter's comorbidity with severe disorders (i.e., BPD, histrionic PD, etc). An adapted inpatient DBT program for women with co-occurring BPD ($N = 24$) showed a 33% remission rate for AN and 54% for BN at the 15-month follow-up (Kröger et al., 2010). However, 44.4% of participants with AN had crossed over to a BN diagnosis, a pattern that predicted higher risks of relapse into AN (Eddy et al., 2008). This migration in ED pathology meant that support for the program was unclear, despite promising within-condition effects sizes from pre- to post-treatment on overall ED symptoms ($g = 0.93$ and $g = 0.73$ for AN and BN respectively; for pre-treatment to follow-up, $g = 0.90$ and $g = 0.68$). Both studies highlighted a need for further improvements to DBT treatment for AN.

These improvements may come in the form of RO-DBT; however evidence on RO-DBT for AN is limited at this time. Despite RO-DBT not focusing specifically on eating disorder (ED) pathology, both studies on it (Chen et al., 2015; Lynch et al., 2013) reported significant increases of body-mass index (BMI) and improvements in ED symptoms. Chen et al. (2015) found that RO-DBT recipients additionally showed improvements in medical problems linked to anorexia (e.g., 55% regaining regular menstruation at 12-months follow-up, (BMI) improvements maintained after 12 months) and fewer co-morbid disorders (e.g., OCPD, avoidant PD, social anxiety). However, this study utilized a case series design with a small sample size ($N = 9$) and the first study ($N = 47$) did not obtain follow-up data. Thus, the evidence for treating AN with RO-DBT is preliminary.

Navarro-Haro et al.'s non-randomized, multi-site clinical trial (2018), was the most recent as well as the only study involving a comparison group and all modes of DBT. Regarding the ancillary interventions at the day hospital, comparisons between the outpatient ($n$ = 91) and total sample ($N$ = 109) suggested these had minimal influence on study outcomes. However, between-group comparisons between DBT and CBT found no significant differences in frequency of maladaptive eating behaviours although DBT did show significantly higher effects than CBT on other measures of BPD dysfunctional behaviours, emotion regulation and depressive symptoms. In the follow-up study (Navarro-Haro et al., 2021), there were no significant differences between DBT and CBT over six years, although participants in the DBT (but not CBT) condition showed significant improvement in emotional eating at the four-year and six-year follow-up.

Although adapted DBT may be a potentially efficacious treatment, DBT in these studies may be better understood as having effects on a heterogenous ED sample (and more often, with co-morbid BPD) rather than AN per se; the specific DBT-adaptations required to best treat AN and its subtypes are yet to be established. Only one of the three non-RO-DBT studies distinguished between the different types of AN. AN comprised only 20% of the sample in Navarro-Haro et al.'s (2018b) trial, where majority were diagnosed with EDNOS and BN. The two RO-DBT studies did focus on recruiting individuals with AN, however research for RO-DBT with this population is 'in its infancy' (Ben-Porath et al., 2020, p. 101), requiring more rigorous testing, i.e., RCT methodology and follow-up assessments. RO-DBT, being grounded in contemporary theories regarding emotional overcontrol and conceptualizing food restriction (e.g., AN-R) as emotion regulation attempts (Hempel et al., 2008), holds promise.

**Binge Eating Disorder (BED).** Research on DBT for BED has been supported by case studies (e.g., Erb et al., 2013), uncontrolled trials (Klein et al., 2012) and RCTs. Given the high availability of evidence compared to other EDs, the outcomes of seven RCTs will be focused on below.

***DBT-Intervention and Adaptations.*** The initial adaptation was known as DBT for Binge Eating Disorder (DBT-BED; Telch et al., 2001). Now referred to as the Stanford Model, this is applied for both outpatient BED and BN (DBT-BN; Safer et al., 2001; 2009), and not for patients with

suicidal behaviours. Only 20 sessions of one treatment mode is offered – group DBT skills training (2 hour sessions) for BED, individual DBT for BN. Also, only three DBT skills (mindfulness, distress tolerance, emotion regulation) are taught. These changes were for research purposes (Chen et al., 2018), so that comparisons could be made with other evidence-based treatments for BED and BN (namely, CBT and Interpersonal Therapy [IPT]) that were also 20 sessions. Interpersonal effectiveness skills were removed due to time constraints; Chen et al. (2018) acknowledged that there was no empirical basis for this decision given the evidence supporting IPT for BED. Other changes included setting ED behaviours as treatment targets (leading to changes in the treatment hierarchy, chain analyses and diary cards; e.g., Wiser & Telch, 1999) and adding skills targeted at eating (e.g., mindful eating, urge surfing, understanding dialectical abstinence). These are detailed in guides elsewhere (Chen et al., 2018; Chen & Safer, 2010). DBT-BED was adopted in Iran, where it was studied in two RCTs (Rahmani et al., 2018; Dastan et al., 2020), followed by in a Dutch community eating disorder service (Lammers et al., 2022). Also, from this model, DBT-guided self-help (DBTgsh or DBT-GSH) was developed and tested in preliminary trials (Masson et al., 2013; Carter et al., 2020).

***Outcomes.*** The first DBT-BED RCT (Telch et al., 2001) proved DBT-BED resulted in higher abstinence from binge eating (89% versus 12.5% of wait-list controls at post-treatment; $d$ = 1.50–1.51) and significantly improved patients' concerns about weight, shape and eating ($d$ = 0.82, 0.80 and 1.11 respectively). DBT-BED trials, all conducted in the United States, were expanded to include males and stronger comparisons, an active comparison group treatment (ACGT; see Safer et al. [2010]; Robinson & Safer [2012]). However, improvements in binge abstinence showed no significant differences (64% in DBT-BED versus 56% in ACGT at one-year follow-up), and only small to moderate effects sizes on ED measures and BMI. A significantly lower dropout rate (4% in DBT-BED and 33.3% in ACGT) suggested that DBT was only useful in reducing therapy-interfering behaviour, thereby maintaining treatment engagement. An RCT in Iran then demonstrated significant decreases in BMI, binge eating and difficulties in emotion regulation with DBT-BED compared to wait-list controls (Rahmani et al., 2018). A second RCT in Iran found that at post-treatment, the DBT-BED group showed significantly lower scores than the control group on BMI and other self-reported

measures of appearance evaluation, appearance orientation, overweight preoccupation, body satisfaction and emotional eating (due to anger and anxiety but not depression) (Dastan et al., 2020).

Robinson & Safer (2012) were the first to investigate treatment moderators and identified that persons with avoidant PD or earlier onset of being overweight and dieting showed significantly poorer outcomes with ACGT than DBT-BED. However, strong conclusions for BED with co-morbid avoidant PD (e.g., whether they specifically benefitted from DBT's structure) could not be drawn from a single study, and there is a paucity of research on moderators of DBT.

DBTgsh was first implemented by Masson and colleagues (2013), who found that the treatment led to significantly fewer binge eating episodes ($d$ = 0.79 at post-treatment; $d$ = 0.73 at six-month follow-up) and greater binge abstinence rates than the wait-list condition (40% versus 3.30% at post-treatment; 30% for DBTgsh at follow-up; no follow-up information for controls). When past-month binge eating frequency was examined, they found a rate of 9.5 episode at the six-month follow-up, higher than those reflected elsewhere (5.0 for group DBT-BED in Safer et al., 2010). Carter et al. (2019) followed up by comparing DBTgsh with DBT and self-esteem unguided self-help (DBT-USH and SE-USH). Intention to treat (ITT) analyses showed DBTgsh had the largest decline in binge frequency ($d$ = 1.41 from pre- to post-treatment for binge episodes; compared to $d$ = 1.18 for DBT-USH, $d$ = 0.90 for SE-USH). However none of the groups differed significantly on other outcomes, possibly due to low treatment completion (65% overall at post-treatment).

Overall, DBT for BED first demonstrated sufficient success in order for self-help interventions to be explored as an alternative of disseminating this intervention. Future research should compare the treatment with CBT, investigating how DBT-BED works in-depth (e.g., further identification of moderators and mediators). DBTgsh may make treatments more accessible, but will need to be evaluated in larger samples given the high attrition rates in Carter et al.'s (2020) study.

**Bulimia Nervosa (BN).** Only one RCT on DBT for BN has been conducted using a sample solely with this diagnosis (Safer et al., 2001). The majority of the studies involving BN utilized a mixed sample or modified the diagnostic criteria for BN to 'broaden the study's applicability' (Safer et al., 2001, p. 623; here, participants did not strictly need to show two binge/purge episodes as per the DSM-IV). Navarro-Haro et al. (2018), Kröger et al. (2010) and Salbach-Andrae et al. (2008)

sampled a mix of AN and BN patients; all participants further had co-occurring BPD in the first two studies (these studies have already been discussed under the earlier subsection on AN). While DBT decreased binge episodes for BN-BPD inpatients (Kröger et al., 2010), zero adolescent outpatients with BN were remitted after DBT (Salbach-Andrae et al., 2008).

***DBT-Intervention and Adaptations.*** According to the Stanford Model (initially referred to as DBT-BN; Safer et al., 2001), treatment for BN is via 50- to 60-minute individual therapy sessions. As with DBT-BED, 20 sessions are provided. A study combined DBT with appetite awareness training (Craighead & Allen, 1995), to develop appetite-focused DBT (DBT-AF) delivered over 12 sessions. DBT-AF introduces self-monitoring of eating-specific cues to guide food intake; this is coupled with individual DBT skills training as per Safer et al. (2009). Three studies that sampled both AN and BN patients were discussed earlier and will not be referenced below.

***Outcomes.*** The RCT found high binge-purge abstinence rates after treatment (28.6% for DBT-BN, 0% in wait-list controls; Safer et al., 2001). Effect sizes of $d$ = 1.15 for binge eating and $d$ = 0.61 for purging behaviours were reflected in ITT analyses, while effect sizes for changes in urges to eat when angry, anxious and depressed were $d$ = 0.89, 0.78 and 0.56 respectively. Chen et al. (2008) piloted 6 months of standard DBT for women with BPD and either co-morbid BED or BN (also refer to the aforementioned section on BED), with large effect sizes of objective binge eating-frequencies and ED symptom severity ($d$ = 0.97–2.00). Klein et al. (2012) expanded the knowledge on DBT for binge eating beyond efficacy trials through research at a community clinic, with their group-based DBT program resulting in significant improvements in binge eating ($d$ = 2.45). Despite positive findings, both studies are limited by small, all-female samples containing more participants with BED symptoms than BN. More research is therefore needed to understand effects on BN itself.

The most recent study (Chen et al., 2017) sampled higher numbers of participants with both BED and BN, where weak responders to guided self-help in CBT (cGSH) were offered 6-month standard DBT or enhanced CBT (CBT+). After DBT, large within-treatment effects ($d$ = 0.95) were found for frequency of objective binge days, but effect sizes compared to cGSH were small ($d$ = 0.27). These patterns were similarly observed with the CBT+ condition. All conditions did not differ on frequency of objective binge days at 6- and 12-month follow-up. Thus, DBT cannot be said to be

superior to the comparative treatment, and both DBT and CBT appeared to be helpful for treating binge-eating.

Finally, DBT-AF, compared to delayed-treatment controls, (Hill et al., 2011) showed significant reductions of BN symptoms at the 6-week mark. At post-treatment, 61.5% of the sample who started treatment ($n$ = 26) stopped meeting full or sub-clinical criteria for BN and 26.9% were abstinent from binge/purge behaviours. Although there was rapid response to DBT-AF, it has not been studied elsewhere. With no follow-up comparisons, it is unknown whether treatment effects were sustained.

Overall, research on DBT for BED and BN suggest that while findings support the utility of standard DBT and DBT-adaptations for binge eating in general, its efficacy specifically for BN warrants further investigation in order to be considered an alternative to CBT, which remains the first-line treatment for BN.

**Complex ED Presentations.** Complex ED presentations (where the ED diagnosis is primary and severe, and/or involving comorbid diagnoses like BPD) necessitate treatment in higher levels of care, such as day hospital programs. These comorbidities disrupt progress in outpatient treatment, or worsen the ED to become potentially life-threatening. The Multidiagnostic Eating Disorders for DBT Model (MED-DBT; Federici et al., 2012) was developed for these types of ED, in contrast with other studies where standard DBT with added ED-specific skills were delivered. Other single studies on ED with co-morbid diagnoses of substance use disorder (SUD; e.g., Courbasson et al., 2012) and BPD (Navarro-Haro et al., 2018) in non-randomized trials are not reviewed.

***DBT-Intervention and Adaptations.*** MED-DBT (Wisniewski et al., 2007) is a milieu treatment program, emphasizing a therapeutic environment that is both collaborative and grounded in behavioural principles (Wisniewski & Ben-Porath, 2015). All four DBT modes are employed, although it is predominantly group-based. Patients attend either an intensive outpatient program (IOP; 3 hours/day, 3–5 days/week) or day treatment program (DTP; 6 hours/day, 5 days/week) over six months. Most begin with DTP and graduate to IOP when symptom severity decreases, to build independence and life outside of the ED. Federici et al.'s (2012) protocol provides the treatment model conceptualization and unique program content (see Appendix D for the latter).

Brown and colleagues (2018) adjusted the program, but followed the same format as Federici et al. (2012). They describe a partial hospital program (PHP; 6–10 hours/day, up to 6 days/week depending on severity) level of care, similarly stepped down to an IOP level of care (4 hours/day, 3–5 days/week). A main modification is that non-DBT group programs were made available to patients in the PHP (see Appendix D).

***Outcomes.*** In a case series analysis, MED-DBT led to reductions in ED symptoms, suicidal behaviours, medical and psychiatric hospitalization, and other therapy-interfering behaviours among several women with complex ED presentations (Federici and Wisniewski; 2013). When applied in a day hospital treatment program (outpatient standard CBT paired with DBT skills training; Ben-Porath et al., 2014), there were significant weight increases ($d$ = .67) and improved affect regulation ($d$ = .29), as well as significant reductions in ED behaviours (effect sizes for restriction, binging, purging and excessive exercise were $d$ = .36, .59, .57 and .42) and ED cognitions ($d$ = .18 to .75). However, it was noted that this was a limited dose of DBT (2 hours/week), and there was no follow-up data.

Brown and colleagues then researched a DBT-based PHP for chronic EDs with psychiatric comorbidity in multiple studies (2018, 2019, 2020). They found significant improvements in weight for AN-R and AN-BP patients ($d$ = 1.38 and .77 respectively at discharge, and $d$ = 1.25 and 1.20 at follow-up), reduction in ED symptoms (moderate to large effect sizes across all ED types), and 49% remission (full or partial) at discharge, with 37% at one-year follow-up (Brown et al., 2018). Among 135 patients admitted into a DBT-based PHP, earlier acquisition and use of DBT skills (within the first month) predicted symptom improvements in ED, depressive and emotion dysregulation (Brown et al., 2019). The PHP led to improvements in emotion regulation from admission to discharge across all types of ED diagnoses ($d$ = .46, .60 and .61 for AN-R, AN-BP and BN respectively; Brown et al., 2020), but only BN retained improvements at follow-up ($d$ = . 66).

These studies provide useful information on applications of MED-DBT in naturalistic designs and the potential impact on ED pathology as well as emotion regulation. However, the lack of a control group and randomization means that it is not possible to unequivocally attribute the improvements in ED symptoms to DBT alone, natural changes over time, or other variables unaccounted for. Especially for Ben-Porath's (2014) study, it is unknown whether the treatment

effects are due to DBT, CBT or a combination, since there was no assignment to different treatment groups. Many of the studies had no follow-up data, except for Brown et al. (2018, 2020). However, follow-up in their research was not standardized at fixed time points (ranged from 78–850 days after discharge, albeit equivalent across diagnoses) and survey completion rates were low. As this was more so for AN-BP and BN, potentially biased attrition cannot be ruled out, suggesting inflated estimates of improvement at discharge.

### *Intellectual and Developmental Disabilities*

A systematic review identified several studies of DBT for individuals with intellectual disabilities (ID) and developmental disorders (McNair et al., 2017), concluding that more rigorous study designs were needed. Its findings, together with other literature, show that each study made individual adaptations to suit their unique clinical setting, ranging from private schools (e.g., Uwakwe & Akanbi, 2017), community-based (Hall et al., 2013), mental health hospitals (e.g., Roscoe et al., 2016), and ID-supported residential (e.g., Sakdalan et al., 2010) or forensic secure facilities (e.g., Sakdalan et al., 2010; Sakdalan & Collier, 2012).

A number of studies were qualitative in nature (i.e., Hall et al., 2013; Pearson et al., 2021; Roscoe et al., 2016; Thomson & Johnson, 2017) and explored the experiences of service users across these different settings. A few studies were also excluded from this review because these were not treatment studies, but rather program descriptions of adapted DBT for individuals with learning disabilities (e.g., Baillie & Slater [2014] describe one that is based in a community service, while Morrissey & Ingamells [2011] share about one implemented in a forensic service) or case studies (e.g., Florez & Bethay, 2017). These could be useful resources for anyone who interested to understand the specific adaptations made for this population, as the authors cover this in detail.

**DBT-Intervention and Adaptations.** Across several publications generated from the United States, New Zealand, United Kingdom and Canada, each study team developed their own DBT program and all of these have yet to be replicated elsewhere. In line with the developmental needs of this client population, the adaptations involve simplifying concepts and handouts, incorporation of visual aids, use of heavy repetition and behavioural rehearsal during skills training and changes to session length to sustain attention (e.g., groups in Charlton & Dykstra's [2011] program were 30 to 60

minutes and twice a week; individual DBT therapy in Lew et al.'s [2006] program was similarly adjusted to 30 minutes twice a week). In addition, Lew et al. (2006) delivered a group that was 2 hours long, but had a 30-minute dinner break built into the agenda to make the experience more welcoming for a population who tended to have aversive histories with school and learning.

A minority of the studies provided solely skills training (as outlined in Appendix D), and those that did so provided a higher dose of the treatment as compared to DBT-ST for other psychiatric concerns, such as Crossland et al.'s (2017) 18-week group. Sakdalan et al. (2010) provided a 13-weekly skills training group for individuals with ID and histories of violent offending, but emphasized concurrent support for the treatment environment through also training and educating auxiliary service providers such as vocational and residential staff.

The majority of DBT programs emphasized on skills training yet involved all DBT modes, albeit with different modifications to each mode. The first program was run by Lew et al. (2006) for individuals with ID and co-morbid Axis I disorders, where clients attended three cycles of a 23-weekly group. The second was by Charlton & Dykstra (2011), labelled as DBT for Special Populations (DBT-SP), was created for adolescents at a day centre with developmental and behavioural needs. Another program was titled by Brown et al. (2013) as the Skills System (SS or DBT-SS), who also called it a 'skills curriculum' that follows DBT principles (Brown et al., 2013, p.289). Notably, a treatment manual has since been published and marketed as a DBT-informed approach developed for 'cognitively challenged clients' (Brown, 2016), wherein DBT skills modules are substituted by a Skills List (of 9 skills) and 3 System Tools to create an easier framework for learners to select relevant skills for their personal situation. Most recently, Jones et al. (2021) based their skills group on DBT-SP, but integrated mindfulness into the other core DBT skills modules. In these four programs, telephone coaching was seen as essential but required modifications either due to resources on-hand or intensity of clients' needs. Lew et al. (2006) had a DBT clinician-on-duty rostered who referred to callers' individualized care plans, while Charlton & Dykstra's (2011) clients called the primary therapist and other DBT-SP-trained personnel. Lew et al. (2006), Brown et al. (2013) and Jones et al. (2021) trained family members or support staff (if clients were in a residential placement) to serve as skills coaches between therapy sessions. Jones et al. (2021) additionally

ensured clients and their parents could call DBT group leaders, their individual therapists or a crisis line in emergencies. As for consultation teams, great lengths were taken to facilitate this mode at multiple levels, often involving auxiliary treatment providers (e.g., residential staff) and inter-agency teams (e.g., community clinicians co-managing cases).

**Outcomes.** In the United States, the largest study was on 40 participants with developmental disabilities in a community setting (Brown et al., 2013). Although treatment length for each individual was not fixed (mean length = 82 months), significantly large decreases in frequency of challenging behaviours (including serious violent, self-injurious and illegal behaviours) was observed over 4 years of DBT-SS. Charlton & Dykstra's (2011) pilot study conducted DBT-SP with 19 adolescents, and observational results (based on client behaviours, DBT diary cards) supported the need for ID-specific adaptations. As with DBT-SS, no other studies have been conducted on DBT-SP thus far, although Jones et al. (2021) later based their group content on DBT-SP (they delivered full-mode DBT). Both studies were conducted in the United States, as was Lew et al's (2006) program that treated 8 women and their carers, and found that risky behaviours (primary outcome) increased in the first 6 months of treatment, but improved after 12 months and improvements were sustained at the 18$^{th}$ month.

In other countries, studies were conducted on a much smaller scale. Sakdalan et al. (2010) conducted a pilot study ($n$ = 6) for forensic clients in New Zealand, which demonstrated significant post-treatment increases on clinician-rated measures of clinical and psychosocial outcomes. In the United Kingdom, all participants (n = 4) in Crossland et al.'s (2017) study showed improvements in measures of global functioning and well-being that were generally maintained at a 4-month follow-up. Hewitt et al. (2019) tracked 3 out of these 4 participants and found that although two persons maintained lower psychological distress scores compared to pre-group, scores showed a general decline from the 6-month to the 2-year follow-up. They suggested that a refresher interventions may have helped maintain treatment gains. Most recently, Jones et al.'s (2021) DBT program in Canada found that compared to a control group ($n$ = 10), participants who underwent adapted, intensive DBT did not show any significantly better improvements at post-treatment. Both groups showed variable scores on a battery of client and caregiver-completed measures, leading Jones et al. (2021) to speculate that clients were so heterogenous in their presentations that the skills taught even within the

group may need to be tailored to individuals.

As the majority of these were feasibility studies or pilots, insufficient empirical evidence presently exists to strongly support any of these adaptations (e.g., only one of the studies involved a comparison group), given that this research is in its infancy. However, since more than half of them also shared themes derived from qualitative data (e.g., Crossland et al., 2017; Hewitt et al., 2019; Jones et al., 2021) these programs are worth further exploration, to benefit persons with ID through therapy interventions provided in an accessible manner.

### *Posttraumatic Stress Disorder (PTSD)*

The earliest studies on DBT for posttraumatic stress disorder (PTSD) were case studies (Wagner et al., 2007), where modified-Prolonged Exposure (PE; Foa, 2007; Foa & Rothbaum, 1998) was integrated with standard DBT to treat chronic PTSD in women with BPD, later termed as DBT-PE. In Germany, a group of clinicians and researchers separately developed a different approach, DBT-PTSD (e.g., Bohus et al., 2019), a phase-based treatment to suit females specifically with childhood abuse and complex presentations of PTSD.

**DBT-Intervention and Adaptations.** The DBT-PE Protocol authored by Harned et al. (2012; also Harned 2013) is offered individually, on top of standard DBT, to patients with adequate control over high-priority targets in their treatment target hierarchy (i.e., no serious life-threatening behaviours or therapy-interfering behaviours). Additionally, patients must be willing to prioritize treating PTSD and to experience painful emotions without escaping, signalling readiness for the exposures and trauma processing characteristic of PE. DBT strategies are applied to monitor aversive responses or problem behaviours resulting from exposures. In research settings, the treatment lasts for a year (Harned et al., 2014; 2018).

DBT-PTSD combines interventions from trauma-focused exposure (e.g., Foa et al., 2007) and cognitive-behavioural therapy (e.g., Ehlers & Clark, 2000) with DBT principles and methods, forming a modular approach that supports patients with suicidal behaviours or severe dissociative symptoms. One notable addition is the introduction of self-compassion as a module (Bohus & Priebe, 2019; Bohus et al., 2019). The earliest study on DBT-PTSD similarly introduced it as a modular approach (Steil et al., 2011). Originally a 12-week residential program, in line with research recommending

higher levels of care for PTSD (Ehlers et al., 2010) or PDs (Bartak et al., 2011; Ogrodniczuk, 2011), it is now more commonly delivered on a one-to-one basis. One uncontrolled trial has since delivered outpatient DBT-PTSD over 24 sessions (Steil et al., 2018) and an RCT comparing DBT-PTSD with cognitive processing therapy provided participants in the DBT-PTSD group with up to 45 weekly outpatient sessions followed by 3 monthly booster sessions (Bohus et al., 2020).

**Outcomes.** The PE-based protocol delivered with standard DBT decreased PTSD symptoms in two case studies on women with BPD (Harned & Linehan, 2008). Harned and colleagues (2010, 2012) further developed the DBT-PE protocol through efficacy studies, culminating in an RCT on integrating DBT-PE into DBT (DBT+PE) for 26 women with co-occurring PTSD and BPD that published data on clinical outcomes (Harned et al., 2014) and secondary analyses on functional outcomes (Harned et al., 2018). Compared to DBT, DBT+PE achieved larger pre-post treatment improvements in PTSD severity and at the three-month follow-up, where the DBT+PE group's rate of recovery and PTSD remission was sustained at 80% and 60% respectively for treatment completers, while the DBT group's decreased to 0% (Harned et al., 2014). PTSD severity significantly predicted gains in global functioning, global social adjustment, and health-related quality of life, which were significantly higher in DBT+PE group (Harned et al., 2018). Most importantly, this adaptation was translated out of controlled academic settings and into public mental health settings through a quasi-experimental, controlled study that compared DBT with ($n$ = 16) and without DBT-PE ($n$ = 19; Harned et al., 2021c). Medium reductions in PTSD severity were found for those who were purely in DBT / did not start on DBT-PE ($g$ = 0.5), and very large reductions among those who initiated and completed DBT-PE ($g$ = 1.1 and 1.4 respectively). The DBT group showed small to medium pre-post treatments reductions in suicide attempts, dissociation, posttraumatic cognitions, general psychological distress, emotion dysregulation and limited activity days ($g$'s = -0.1–0.6), while the DBT-PE group showed medium to large effects ($g$'s = 0.4–1.0). Between-group effect sizes at post-treatment were overall in favour of the DBT-PE completers as compared to non-initiators (i.e., the DBT group) for PTSD severity ($g$ = 0.8) and reductions in suicide attempts ($g$ = 0.5). Taken together, studies on DBT-PE comprise a program of research that supports the feasibility of its implementation for a population with severe needs. The most recent trials used a rigorous design and a strong

comparison group (DBT-only), but were limited by small sample sizes and low power.

Regarding DBT-PTSD, its first RCT revealed that PTSD symptoms showed significantly larger improvements with DBT-PTSD than with TAU wait-list controls (Bohus et al., 2013). However, TAU wait-list participants received any treatment of their choice except DBT-PTSD (before receiving DBT-PTSD after the study period), and this comparison meant that non-specific variables (e.g., residential care) could not be safely ruled out as contributing to results. When DBT-PTSD was applied in an outpatient setting to a single treatment group (Steil et al., 2018), significant improvements were reflected in PTSD, BPD and depression symptoms ($d$ = 1.30–1.50, $d$ = 1.20–1.60, $d$ = 1.50 respectively from pre-treatment to six-week follow-up). In a second, larger-scale RCT ($N$ = 193; Bohus et al., 2020), participants who completed DBT-PTSD treatment showed more pronounced improvements in PTSD symptoms than participants who completed cognitive processing therapy (CPT) on (DBT-PTSD: $d$ = 1.35–1.55; CPT: $d$ = 0.90–0.98; group difference 0.33 and 0.57). A similar pattern was seen on other between-group comparisons on dissociative, borderline and depression symptoms. These studies' designs did not allow for identification of which modules or treatment components contributed to PTSD-symptom improvement.

Most of the evidence is based on the two most well-known DBT adaptations for PTSD. Elsewhere, six female adolescents showed large and significance reductions in self-reported posttraumatic stress, depression and anxiety following 26 weeks of DBT-A treatment in a community-based clinic (Geddes et al., 2013). Gains were maintained three months after treatment completion (Pearson's $r$=0.64 across symptoms). At the follow-up, a large reduction in anger symptoms ($r$=0.58) and moderate reductions in dissociation symptoms ($r$=0.47) were also observed. Although PTSD symptoms were studied as an outcome, the study's inclusion criteria did not specify a diagnosis of PTSD. Apart from this, research on DBT for younger patients with PTSD is lacking.

The delivery of DBT for this heterogenous population, usually presenting with multiple problems, requires more attention. While Barnicot & Priebe (2013) highlighted that patients with BPD and co-morbid PTSD had poorer outcomes from DBT than those with BPD alone, Bohus et al. (2013; 2020) showed that treatment of PTSD using DBT-PTSD was unaffected by a diagnosis of BPD, or number or severity of BPD symptoms. Existing modifications to suit individuals with PTSD

appear promising, although more investigation may be needed to conclude whether DBT-PTSD or DBT-PE can simultaneously treat PTSD and BPD symptoms, given the complexity of this co-morbid presentation. Lastly, these studies were conducted on all-female samples, thus it remains to be seen if the treatments can be successfully applied across genders.

### *Psychosis*

There is very limited peer-reviewed empirical research on DBT for psychotic disorders and schizophrenia, as the search yielded some results in the form of unpublished theses that will not be discussed here. Mullen (2023) was a proponent of applying DBT treatment to this population of patients, having edited a DBT skills workbook for psychosis (2021) and written a book chapter on DBT-informed interventions for psychosis where she highlighted the individuals with BPD often experience psychotic symptoms. However, only one relevant study was found for inclusion in this review.

**DBT-Intervention and Adaptations.** Lawlor et al. (2022) employed a mixed-method design to study an eight-session DBT-informed skills group conducted by community psychosis services in the United Kingdom. At present, this is the only research program that has been adapted for psychosis. The group program covered three core DBT skills of mindfulness, emotion regulation and distress tolerance. Adaptations included shortening the session length and homework review, incorporating a recap of the previous session's content, and simplification of written materials to accommodate the cognitive and attentional difficulties that this client population often faced.

**Outcomes.** There was no comparison group in Lawlor et al.'s (2022) study, and pre-post changes showed significant improvements in psychological distress ($d = 0.7$), emotion regulation difficulties ($d$'s = 0.3–0.7) and adaptive emotion regulation skill use ($d = 0.7$). Psychotic symptoms however were not measured, as the authors opined that changes in affective processes would be more recovery oriented and better received by service users as acceptable treatment targets.

The research on DBT for psychosis needs much development, and will possibly grow with time. A study on DBT in an adolescent long-term inpatient unit reported that a subgroup who received milieu DBT had a psychotic illness (McDonell et al., 2010) but it did not specifically investigate effects of DBT on symptoms of psychosis, which future research could consider in terms of

measuring impact.

***Substance Abuse and Dependence***

Van den Bosch et al. (2002; 2005) previously investigated females with BPD, with and without substance abuse, where standard DBT led to greater reductions of BPD symptoms than TAU, but did not impact substance abuse problems. They posited that instead of developing a separate program for dual diagnoses, therapists needed to achieve competence in treating manifestations of personality pathology apart from suicidal behaviours (the primary treatment targets in their study, consistent with standard DBT), such as substance abuse and binge eating. Since then, multiple studies have been carried out for this population, sufficient for a meta-analysis on DBT for substance use to include six randomized clinical trials (Haktanir & Callender, 2020). Another systematic review and meta-analysis included three trials comparing DBT to treatment as usual or to 12-step programs for persons with SUD (Giannelli et al., 2019). DBT skills training has also been applied as a standalone treatment for substance use disorders (SUD); see Warner & Murphy [2022] for a systematic review).

**DBT-Intervention and Adaptations.** DBT for substance use disorders (DBT-SUD; Rosenthal et al., 2005), a one-year treatment with all four modes, was developed for individuals with SUD and co-occurring BPD. Its specific modifications can be found in other articles (Dimeff et al., 2000; Dimeff & Linehan, 2008; Rosenthal et al., 2005). Importantly, there was sufficient empirical support for including seven new DBT skills for addictive behaviours (Linehan, 2015a, p. 477) into the second version of the DBT skills training manual (Linehan, 2015a; 2015b). Among these, a dialectical approach to abstinence was introduced, balancing between an insistence on absolute abstinence and harm reduction (non-judgmental responses to relapse that are focused on minimizing adverse consequences; also see Appendix). An existing meta-analysis (Haktanir & Callender, 2020) did not elaborate on the exact DBT-interventions in the included studies, but reported the number of sessions of DBT provided (8 to 52; average of 38 weeks).

Apart from DBT-SUD, Warner & Murphy (2022) highlighted that DBT skills training alone is a common treatment option for SUD but researchers and practitioners may require a clearer joint understanding of what this is actually constituted of, due to some variability in the treatments provided. Their systematic review of 9 studies (some of which are discussed in this literature review)

showed that the number of sessions provided across the different skills training programs ranged from 8 (Wilks et al., 2018) to as many as 36 (e.g., Cavicchioli et al., 2019; 2020; Maffei et al., 2018). Only one of the studies included interpersonal effectiveness skills in their program (Flynn et al., 2019), while the others focused on a combination of two to three of the other core DBT skills. Consistent with the existing adaptations of DBT for SUD, some of these programs included specific topics on dialectical abstinence and the path to 'Clear Mind' (e.g., see Cavicchioli et al. [2019; 2020] for a description of their program). One trial delivered this intervention online (Wilks et al., 2018).

**Outcomes.** DBT-SUD first demonstrated efficacy in reducing drug abuse compared to a community-based TAU, in an RCT involving 28 participants with both SUD and BPD (Linehan et al., 1999) ($d$ = 1.03 and $d$ = .75 for abstinence duration and clean urinalyses at 4-month follow-up). Only DBT-SUD participants sustained improvements in global and social adjustment at follow-up, although both conditions had shown earlier improvements. Linehan et al.'s (2002) second RCT assessed the efficacy of DBT-SUD for substance users (23 opiate-dependent women with BPD) using a more rigorous control condition – another manualized group program (comprehensive validation therapy with 12-steps; CVT+12S). DBT-SUD participants maintained reductions in opiate abuse throughout the treatment year, while those in CVT+12S did not in the final four months. Notably, while DBT-SUD previously led to higher treatment retention rates compared to TAU (Linehan et al., 1999), this was lower in comparison to CVT+12S, i.e., 64% versus 100% respectively (Linehan et al., 2002).

DBT treatments can be generalized to other types of substance abuse, e.g., DBT-SUD has shown effectiveness with methamphetamine users (Dimeff et al., 2000). DBT skills training was also generalized to males with alcohol dependence (Maffei et al., 2018). At the end of treatment, 73.2% of 157 completers were abstinent. The findings lent support to the DBT model, as improved emotion regulation was reflected among treatment completers, and partially mediated substance use outcomes. However, there was a high co-occurrence of PDs among the sample (44.7%), and more than half of the participants also met criteria for current SUD co-diagnoses of cannabis, cocaine, or anxiolytics. Another study found that participants with a dual diagnosis (including SUD; 26.5% presented with co-occurring PD traits) who were misusing or dependent on at least one among a range of substances

(e.g., alcohol, amphetamines, benzodiazepines, cannabis, cocaine, codeine and heroine) showed reductions in substance use after 24 weeks of DBT skills training based on self-report (Flynn et al., 2019).

Along with this, Haktanir & Callender's (2020) meta-analysis summarized that there was a high co-occurrence of BPD with substance use (30.93% of users with BPD; 6.12% with BPD and recently suicidal). It also highlighted that predominantly women were sampled. They summarized that DBT treatment groups reported higher remission in SUD than comparison groups comprised of alternative treatments or waitlists at post-treatment ($d$ = .66) but not at follow-up assessments, and noted that effect sizes could vary across populations. Studies on DBT-SUD and DBT skills training may thus be considered limited to relatively specific subgroups of substance abusers and require more testing in other populations, such as persons with SUD but without personality-disordered traits.

Lastly, two other studies investigated improvement in emotion regulation as a mechanism of change in DBT treatment of substance use problems (Axelrod et al., 2011, Maffei et al., 2018), which were more difficult to come by in the literature for other psychiatric diagnoses. In particular, Axelrod et al. (2011) found that decreased substance use was linked to improved emotion regulation but not improved depression. However, only 55.6% of participants ($n$ = 27) completed the 20 weeks of comprehensive DBT treatment. Elsewhere improvements in overall Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) scores and acceptance of emotional responses (a subscale on the DERS) partially mediated the relationship between treatment attendance and consecutive days of abstinence from alcohol and other substances (Maffei et al., 2018). While Flynn et al. (2019) did not study emotion regulation as a mediator per se, their study found that there were significant pre-post differences in this area (also in mindfulness and DBT skills use).

The research thus provides foundational support for DBT-SUD applied with opiate-users and other types of substance use, although the majority of the studies sampled participants with PD traits and sample sizes for the RCTs conducted were relatively small. It is noteworthy that positive findings arose when DBT-SUD made several modifications to cater to this population, in contrast to the poor outcomes reflected when standard DBT was inflexibly applied with no changes made even to the treatment hierarchy for specifically targeting substance use (van den Bosch et al., 2002). This

indicates the need for such adaptations in order to apply the treatment more widely and target individual concerns.

### *Trichotillomania*

Only 1 pilot study has been conducted in this area by Keuthen and colleagues (2010, 2011), with results of the trial and longer-term follow-up published in 2 separate papers.

**DBT-Intervention and Adaptations.** 'DBT-enhanced CBT' (Keuthen et al., 2010), a protocolized individual treatment consisting of 11 weekly 50-minute sessions and 4 additional maintenance sessions over 3 months, was provided to 10 females with trichotillomania (3 with current co-morbid psychiatric diagnoses). All DBT skills except for interpersonal effectiveness were introduced, tailored to trichotillomania-related issues such as tolerating urges without hair-pulling.

**Outcomes.** Significant improvements from baseline were reported in emotion regulation, hair-pulling severity and hair-pulling impairment, maintained for up to 3- (Keuthen et al., 2010) and 6 months (Keuthen et al., 2011). emotion regulation capacity and changes in hair-pulling severity were correlated at posttreatment, 3- and 6-months follow-up (Keuthen et al., 2010, 2011). The authors then facilitated an RCT comparing their DBT-enhanced CBT with a minimal attention control (MAC) condition in 38 individuals with trichotillomania (Keuthen et al., 2012). Results showed greater improvement by the treatment group in trichotillomania severity and impairment, as well as emotion regulation capacity, which were largely maintained for 6 months. In this sample, correlations between emotion regulation and symptom severity were not found at post-treatment, but at follow-up. Apart from another case study using the same therapy approach (Keuthen & Sprich, 2012), no other findings on DBT and trichotillomania were found.

## Discussion

### *Summary of Literature*

Overall, DBT has been used to address a wide range of clinical concerns in recent years, but its impact on the various types of pathology, especially in non-BPD populations, requires more scrutiny. Studies on DBT often examined treatment of BPD and a co-morbid psychiatric condition, possibly because the treatment was established for more complex presentations. Outcome measures of symptom severity for a given condition were also not standardized between different researchers. For

example, in the various studies of DBT on ADHD, several measures were administered to track ADHD symptoms, like the ADHD Checklist, an adapted Symptom Check List consisting of 16 items relevant to ADHD, the Wender-Reimherr Interview, the Current ADHD Symptom Scale – Self-Report Form, the adult ADHD Self-Report Scale and the Conners Adult ADHD Rating Scale. For treatment of other conditions, such as DBT for ASD or DBT for psychosis, the studies did not measure symptoms of the specific condition, although perhaps these were conditions that are chronic in nature.

The literature suggests that DBT can be a useful transdiagnostic intervention. However, many of these studies did not involve all four treatment modes. A systematic review of DBT skills training as a stand-alone treatment is available elsewhere (Valentine et al., 2015); thus we are interested in any and all forms of adapted DBT-interventions. From this review, it is evident that multiple variations can exist even within a single treatment mode, such as skills training alone. Modification to skills training included the removal of interpersonal effectiveness and focusing on the other core skills in DBT (e.g., in DBT-BN and MEG, the DBT-informed group for psychotic disorders), as well as the addition of skills modules to the four core DBT skills (e.g., the radical openness module that is part of RO-DBT, or several other skills as in DBT-SUD) or other content specific to the disorder (e.g., psychoeducation on bipolar disorder). The length of skills training, whether it was conducted individually or integrated into individual therapy sessions (e.g., as with DBT-AF, DBT-BN) or in a group setting more typical of standard DBT, in a closed or open group format, was found to vary from study to study. It was more common for studies to focus on this mode of DBT and exclude the other modes of individual therapy, between-session coaching and therapist consultation from their programs. In some studies where the focus was on a DBT group, participants had no restrictions on the type of individual therapy they accessed (e.g., Eisner et al.'s [2017] study). Modifications to the other modes included addition of an exposure-based protocol to individual therapy (as in DBT-PE), changes to the format of telephone coaching (e.g., crisis access as in DBT-SP, where caregivers also served as between-session skills coaches instead of therapists) or offering telephone access to both patients and their carers (e.g., in aDBT-ID) and to the structure of consultation teams (e.g., facilitating supervision instead). Treatment dosages in terms of frequency and duration of sessions were also

adjusted as needed and depending on resources (e.g., in a DBT-based PHP and IOP, the mean treatment duration was 89.24, *SD* = 63.31 [Brown et al., 2018]), reducing the standardization among studies even if similar clinical problems were being targeted. For example, DBT adaptations for AN ranged from 6 months of standard DBT (Navarro-Haro et al., 2018) to a 3-month inpatient DBT program (Kröger et al., 2010). The study of DBT adaptations is hence not a simple task, and further dismantling of treatment components (e.g., impact of each mode) may be required for greater understanding of its necessary elements.

In terms of outcomes, many of the studies had small samples or a single-group design, and some studies only measured pre- and post-intervention scores without follow-up assessments. The largest randomized controlled trials were conducted on RO-DBT (Lynch et al., 2018) and DBT-PTSD (Bohus et al., 2020), while the largest naturalistic study was on a DBT-based PHP for longstanding AN and BN (Brown et al., 2018). Overall, the adaptations for conditions such as ADHD, affective disorders, ED and PTSD tracked the impact of DBT interventions on symptom severity, most often via participant self-report. Studies on affective disorders, ED, PTSD and SUD often tracked remission of the specific condition. Some studies on ED, SUD and trichotillomania utilized behaviours measures such as binge / purge episodes, substance use counts, and hair-pulling severity respectively. Where there was symptomatic relief, no studies examined mediators for it. For example, there is little knowledge on whether the changes seen are due to specific skills such as mindfulness.

Not all of the above studies assessed the relationship between symptom severity, or symptom alleviation and emotion regulation, despite emotion regulation being increasingly incorporated into models of psychopathology. This is important for investigating the premise that DBT targets behavioural, physiological and cognitive aspects of emotion dysregulation through its interventions (Chapman & Hope, 2019). Apart from serving as a treatment target, it may well be a mechanism of change in this type of therapy (Boritz et al., 2018), and persons with high emotion dysregulation have also displayed slower treatment trajectories in DBT (Wilks et al., 2016). Most recently, Harvey et al's (2019) systematic review of 14 DBT-studies that employed the Difficulties of Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) found insufficient current evidence to conclude that DBT is more beneficial than other existing psychotherapies in improving emotion regulation difficulties,

largely due to a variability across DBT programs and other methodological limitations (e.g., absent control conditions, lack of information about participant engagement or DBT adherence) increased risk of bias.

Certain non-therapy variables may play a role in treatment effects. Given that Lynch et al.'s (2007) rationalized that emotion dysregulation poses less of a difficulty with age when designing their early treatment ($DBT^{D+PD}$), age-related differences should be assessed where possible. A large majority of the research was conducted with females, which was especially prominent in PTSD-research and SUD-research. Sampling biases may result from this, as the prevalence of BPD may not differ as greatly between sexes (Grant et al., 2008). In recent years, more attention has been drawn to the consideration of gender identity and diversity (e.g., Sloan et al., 2017a, who were proponents of applying a DBT framework to develop case conceptualization and treatment when working with transgender individuals), but few DBT studies have reported on gender identity in their participant sample and no quantitative research has yet been conducted on DBT to treat gender dysphoria.

Lastly, many of these studies have not accounted for contextual factors such as delivery conditions, intervention staff, differences between laboratory and clinical settings, that determine how DBT is implemented. For example, some therapists who delivered these experimental treatments were more experienced in and committed to DBT, especially when conducted by the treatment developer. This was acknowledged in an DBT-SUD RCT (Linehan et al., 2002), although the exact impact of this is unknown. Questions can also be raised about DBT adaptations that were developed for a specific setting, and then delivered elsewhere, such as when DBT-PTSD was translated from an inpatient to outpatient setting. More knowledge is needed in this area to promote positive treatment outcomes and effective dissemination of DBT as an evidence-based practice, particularly in countries such as Singapore where it is relatively new.

***Conclusion***

In summary, this chapter provided a comprehensive review of the existing literature on applications of DBT for several psychiatric conditions and highlighted key findings for each condition. The strongest evidence appeared to support DBT as a treatment for conditions such as depression, eating disorders, posttraumatic stress and substance use where there were more rigorous

research designs (i.e., RCTs), as opposed to the evidence base for DBT and psychosis, or even DBT and ASD. The upcoming study examines at an adapted DBT program intended as a treatment for a mixed diagnostic sample. The four modes of DBT are of interest, given that multiple studies had focused mainly on DBT skills training. Some of the previous studies only looked at pre-post differences on clinical outcome measures, although a fair number of studies included follow-up assessments. The current research will be tracking participants more closely with multiple pre-intervention as well as mid-intervention assessments, as will be delineated in the next chapter.

# Chapter 3: Study 1 – Evaluating the Effectiveness of Dialectical Behaviour Therapy as a Transdiagnostic Treatment in a Real-World Setting

In the recent years, researchers and treatment providers have been interested in the outcomes of shortened or adapted forms of Dialectical Behaviour Therapy (DBT). In Chapter 1, DBT was introduced together with an overview of the standard DBT format. In Chapter 2, the numerous adaptations of standard DBT for various psychiatric disorders were summarized (some of the most common adaptations being removal of treatment modes or shortening the duration of skills training), and even short-term, skills-only DBT was highlighted to have shown positive effects. An RCT by McMain et al. (2022) found that 6 months of comprehensive DBT showed comparable clinical outcomes as 12 months of the treatment. There were no changes made to the modes and interventions delivered, apart from treatment duration, and in fact participants who received 6 months of the treatment showed a faster decline in symptoms of general psychopathology and DBT.

Little research in the extant literature on DBT has examined results of an adapted outpatient program with modifications made to all four modes of delivery. No study has examined the differences between having DBT or non-DBT individual therapy, nor the effect of different modules within a DBT skills group, which this present study begins to explore by capturing data through repeated measures administered in between each skills module.

This quantitative study investigated the effects of an adapted DBT program as an adjunctive treatment for psychiatric outpatients at the Institute of Mental Health. The research questions were:

1. How effective is the treatment program for reducing difficulties with emotion regulation, together with psychiatric symptoms and problems commonly linked with emotion dysregulation?
2. How effective is the treatment program for improving self-esteem and the use of specific coping skills taught in DBT?

It was hypothesized that program completers would show decreased difficulties in emotion regulation, symptom levels (depression, anxiety, borderline personality traits) and other associated concerns (shame and distress from interpersonal problems) at post-treatment and through follow-up, as compared to pre-treatment. Related to this, the second hypothesis was that individuals who

completed the program would show higher scores on measures of self-esteem, DBT skills (i.e., more effective coping) and mindfulness (a core skill in DBT) at post-treatment and follow-up, compared to pre-treatment.

## Method

### *Design*

This was a one-group, interrupted time-series study design, with each participant tracked over the course of nine months, during which they completed outcome evaluation points at every three weeks.

### *Ethics Statement*

The study protocol was approved on 27/04/2021 by the National Healthcare Group Domain Specific Review Board (DSRB) (DRSB ref: 2021/00204). This quantitative study was supported by the IMH Research Fund (ref: 748-2021).

### *Participants*

Participants were recruited from a treatment-seeking outpatient population at the IMH, who were referred by their treating clinical psychologists to the DBT program. They were required to meet the program's inclusion criteria, specified in Table 5 below.

**Table 5**

*Inclusion and Exclusion Criteria for Participant Recruitment into Study 1*

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Outpatients at the IMH<br>18 to 65 years of age<br>Persons who report difficulties coping with emotions, with a primary diagnosis of mood and anxiety disorders, PTSD and/or BPD/BPD traits<br>On a stable dose of psychiatric medications (if any) for at least 1 month<br>Ability to read/speak English, and to provide informed consent | Persons with current active suicidal intention or plan at the outset of the study (Should participants engage in suicidal behaviours or be hospitalised for suicidality midway through the group program, they may be asked to withdraw from the current run)<br>Persons with active psychotic disorders<br>Persons with neurodevelopmental or neurocognitive disorders<br>Persons who are currently attending other forms of group psychotherapy at the same time |

Participants with current or past suicidal- or non-suicidal self-harm were assessed by DBT therapists to have no immediate suicide risk that prevented them from starting the group sessions

safely. As per the pre-treatment phase conducted in DBT, commitment was elicited and contracted with these clients to be willing to work on suicidal behaviours over the course of the DBT program.

***Participant Flow.*** Recruitment and data collection occurred between August 2021 to August 2023, with the follow-up for the last cohort ending in January 2024. Thirty-six participants who agreed for their clinician to connect them with the study team were screened for eligibility, and two chose not to enrol into the study because parental consent was required (for participants below the age of 21 years) while written informed consent was obtained from the others. Of these, two did not start on the intervention, resulting in a final sample size of $N = 32$. The first two DBT skills groups ran in a closed group format and were initiated in September 2021 and January 2022, consisting of six and five participants respectively. Not all attendees opted into the research program. To aid recruitment, an open group was initiated in July 2022 starting with seven participants and continued running at a rate of zero to three participants entering the study per month, until July 2023 when there were insufficient participants to continue. As no new participants enrolled between April to June 2023, a closed group with six participants was initiated again in July 2023. Of the 32 individuals who commenced the DBT program, 25 completed the intervention, which was defined as attending at least 75% of group skills training sessions (clients who missed three consecutive individual therapy sessions would also be considered as not completing therapy, which was consistent with the organization's clinical protocols). This retention rate of 78.13% is consistent with that reported in a meta-analysis on DBT in RCTs that found a weighted mean retention rate of 72% (Dixon & Linardon, 2020). This is also similar to the retention rate of 70% reported in another study on 12-week DBT with two modes (skills training and telephone consultation; Soler et al., 2005). Information related to participant recruitment and retention is summarized in Figure 1. Demographic information for the 32 participants is shown in Table 6.

**Figure 1**

*Study 1 Flow Chart*

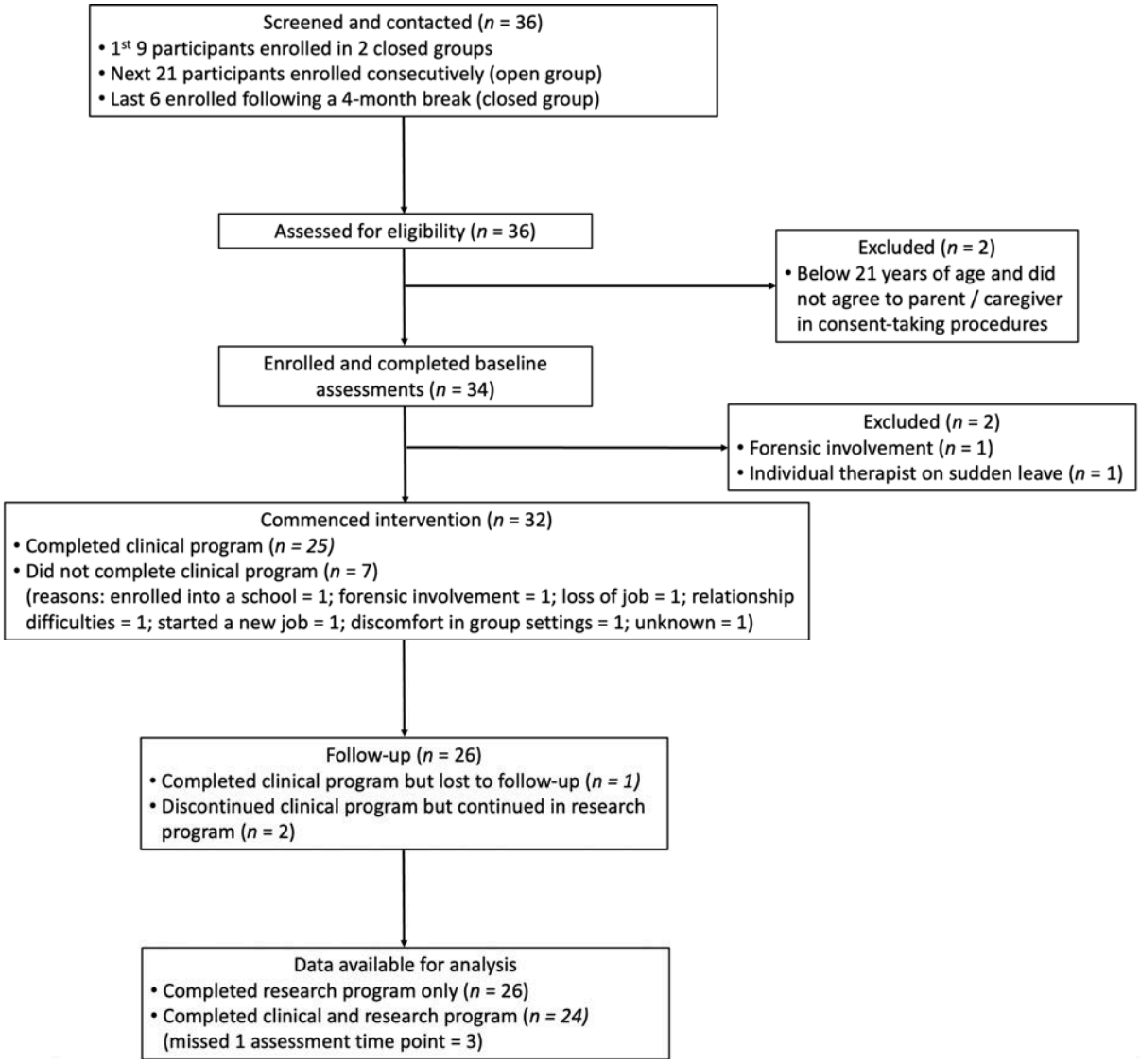


**Table 6**

*Sample Demographics for Participants who Completed Baseline Assessments*

| Characteristic | All Participants (*n* = 32) *n* (%) | Treatment Completers (*n* = 25) *n* (%) |
|---|---|---|
| Age | *M* = 25.50 (*SD* = 5.01) | *M* = 25.83 (*SD* = 5.59) |
| Biological sex or gender identity[1] | | |
| Female | 24 (75%) | 19 (76%) |
| Male | 7 (21.88%) | 5 (20%) |
| Gender non-conforming | 1 (3.13%) | 1 (4%) |
| Race | | |
| Chinese | 20 (62.5%) | 16 (64%) |
| Malay | 6 (18.75%) | 4 (16%) |
| Indian | 1 (3.13%) | 0 (0%) |
| Eurasian | 2 (6.25%) | 2 (8%) |
| Other | 3 (9.38%) | 3 (12%) |
| Relationship Status | | |
| Single | 26 (81.25 %) | 20 (80%) |
| In a relationship | 6 (18.75%) | 5 (20%) |
| Married | 0 (0%) | 0 (0%) |
| Divorced / widowed | 0 (0%) | 0 (0%) |
| Years of education | *M* = 14.09 (*SD* = 2.46) | *M* = 14.28 (*SD* = 2.55) |
| Employment | | |
| Student | 7 (21.88%) | 6 (24%) |
| Full-time employment | 17 (53.13%) | 14 (56%) |
| Part-time employment | 2 (6.25%) | 2 (8%) |
| Unemployed | 6 (18.75 %) | 3 (12%) |
| Psychiatric diagnoses (including comorbidities) | | |
| Major depressive disorder | 14 (43.75%) | 12 (48%) |
| Dysthymia | 7 (21.88%) | 5 (20%) |
| Bipolar disorder | 2 (6.25%) | 0 (0%) |
| Generalized anxiety disorder | 4 (12.5%) | 3 (12%) |
| Social anxiety disorder | 2 (6.25%) | 2 (8%) |
| Panic disorder | 1 (3.13%) | 0 (0%) |
| Attention-deficit / hyperactivity disorder | 3 (8.38%) | 3 (12%) |
| Obsessive compulsive disorder | 2 (6.25%) | 2 (8%) |
| Posttraumatic stress disorder | 4 (12.5%) | 3 (12%) |
| Substance use disorder | 4 (12.5%) | 3 (12%) |
| Borderline PD | 12 (37.5%) | 9 (36%) |
| Avoidant PD | 1 (3.13%) | 1 (4%) |
| Obsessive compulsive PD | 2 (6.25%) | 1 (4%) |
| PD – trait specified | 2 (6.25%) | 2 (8%) |
| Lifetime psychiatric hospitalizations (Y/N) | 20 (62.5%) | 14 (56%) |
| Currently taking psychiatric medication(s) | 28 (87.5%) | 21 (84%) |
| Family psychiatric history | 14 (43.75%) | 13 (52%) |

[1]If participants indicated that they did not self-identify with their biological sex.

***Intervention***

Participants were provided with the adapted DBT program described in Chapter 1 of this thesis. A modified version of the 'four-miss' rule in standard DBT (Linehan, 1993a) was introduced as part of the program, that is, participants who missed four sessions of therapy consecutively were considered as dropping out of DBT. For the current program, participants who missed three sessions of skills training (even nonconsecutively) were automatically withdrawn, as within the context of a 12-week, short-term group, it would have meant that they missed 25% or the equivalent of an entire skills module. This was contracted with all participants during the orientation sessions.

In the sample, 20 people had individual therapy with a DBT-trained individual therapist (henceforth referred to as 'DBT individual therapist'), while the remaining 12 people were seen by a non-DBT-trained individual therapist (henceforth referred to as 'non-DBT individual therapist). Assignment to either type of individual therapy was based on pre-existing organizational processes as outlined in Chapter 1, not random assignment. Regardless of training background, all individual therapists were clinical psychologists practicing at the IMH. Participants undergoing DBT and non-DBT individual therapy showed equal program completion rates of 75%. All participants adhered to guidelines regarding non-participation in other types of group therapies during the study period. Three participants attended other forms of individual therapy concurrently – counselling at an addictions service, family therapy and art therapy. While the latter tapered off art therapy before starting the DBT skills group (the former both continued with their arrangements until the end of the study), this participant enrolled into another research study on repetitive transcranial magnetic stimulation that overlapped with their DBT skills training.

Rates of use of other hospital services are outlined in Table 7. This data was originally gathered as possible covariates. It should be noted that the mode for number of phone coaching calls was 0, with a maximum of 7 calls by one participant. There were no significant differences between participants seeing DBT and non-DBT individual therapists on any of these variables.

**Table 7**

*Clinical Services Utilization Across Study Phases*

| Services Utilized (No. of Times Accessed) | Pre-Intervention (12 weeks before DBT) Mean (*SD*) | During Intervention (12-weekly program) Mean (*SD*) | Post-Intervention (12 weeks after DBT) Mean (*SD*) |
|---|---|---|---|
| Psychiatric reviews | 1.50 (1.27) | 0.91 (0.93) | 1.06 (0.95) |
| Individual therapy | 5.16 (2.60)[1] | 4.78 (1.74) | 2.72 (2.48) |
| Emergency room visits | 0.09 (0.30) | 0.06 (0.25) | 0.03 (0.18) |
| Psychiatric hospitalizations | 0.03 (0.18) | 0.06 (0.25) | 0 |
| Group skills training[2] | N.A. | 9.56 (3.21) | N.A. |
| Phone coaching[2] | N.A. | 0.44 (1.44) | N.A. |

[1] Individual therapy at the pre-intervention phase are inclusive of DBT intake and orientation sessions conducted by a DBT group therapist (typically 1 to 2 sessions). For some participants with a DBT individual therapist, these sessions could have been conducted by their own individual therapist. The mean and standard deviation excluding these sessions would be 4.03 and 2.66 respectively.

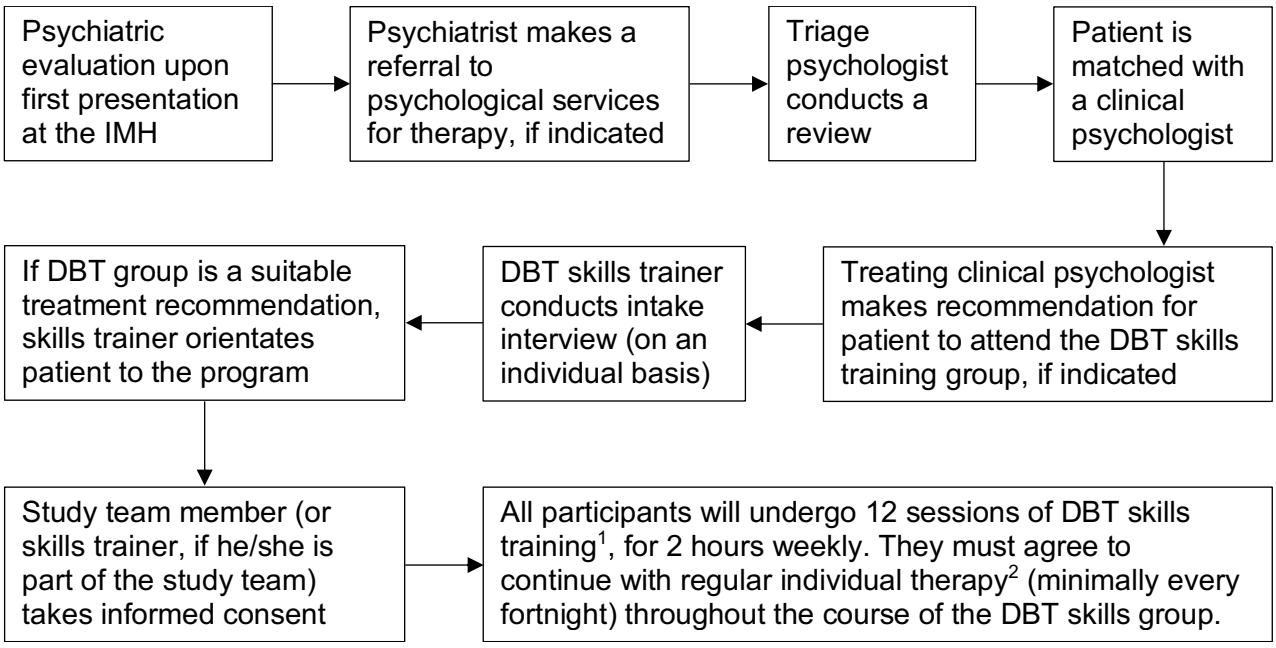
[2] Services made available via the DBT program.

***Procedure***

This was a single-centre, single-group study. Relevant study procedures are outlined in the flowcharts below (see Figures 1 and 2 for more information). Of note, processes in Figure 2 are part of standard clinical care provided at the IMH, except for informed consent procedures, while 11 time points for data collection are highlighted in Figure 3.

**Figure 2**

*Referral and Study Enrolment Process*

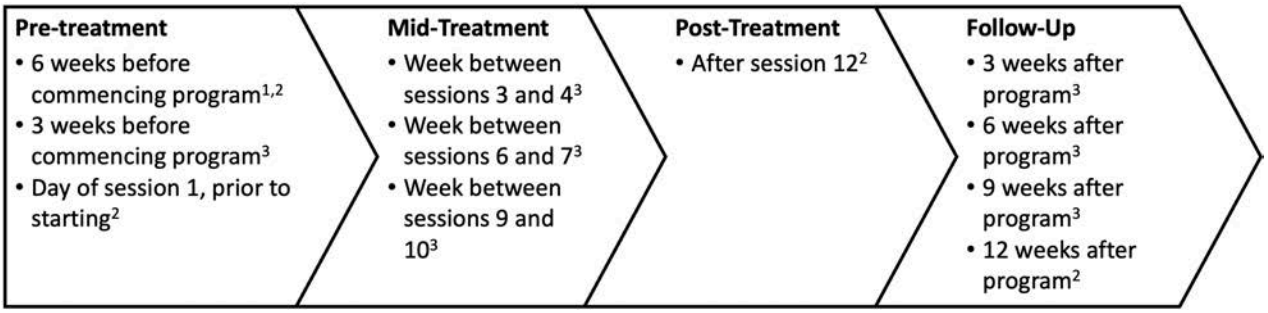



[1] Groups are conducted in an open format, where new members can be enrolled at the start of each new skills module (i.e., every 3 sessions); see Appendix A for program outline and content;

[2] Participants continue with their individual psychologist whom they were receiving services from, who could be DBT-trained or trained in other therapy approaches/ modalities.

**Figure 3**

*Assessment Schedule*




[1] Administration of a demographic questionnaire only at baseline to obtain information on age, gender, cultural background, education, psychiatric and medical history;

[2] Administration of full questionnaire battery;

[3] Administration of selected questionnaires (Difficulty in Emotions Regulation Scale and Depression Anxiety Stress Scales-21).

Participants attended the first three research visits to establish a pre-intervention baseline. During this period, clinical arrangements with their treating psychiatrist and psychologist were already in place. They underwent the DBT program immediately after the third visit, and the intervention phase lasted until just prior to the seventh visit. The latter occurred within the week of completing the program, as a post-intervention measure. The final visit occurred 12 weeks after completing the DBT program (or for program non-completers, after their program was scheduled to end).

***Outcome Measures***

The quantitative outcome measures examined specific treatment targets of DBT skills training and are widely employed in DBT-related research, being well-validated measures of symptoms and problems commonly reported by persons with Axis I disorders or BPD (see Appendix E for questionnaire items; also Appendix F for a correlation matrix of these measures at baseline). Brief descriptions of each measure are provided as follows:

***Difficulties in Emotion Regulation Scale (DERS)***. The DERS (Gratz & Roemer, 2004) is the primary outcome measure, and consists of 36 items measuring multiple domains of emotion dysregulation i.e., lack of emotional awareness, lack of emotional clarity, difficulties engaging in goal-directed behaviours, impulse control difficulties, non-acceptance of emotional responses, and limited emotion regulation strategies. The original validation study reported a high internal consistency ($\alpha = 0.93$) and test-retest reliability ($\rho_I = 0.88$, $p < .01$) (Gratz & Roemer, 2004). In this study, the reliability of the DERS subscales at baseline was also analysed by Cronbach's alpha to be between .80 to .90 for all the subscales.

***Depression Anxiety Stress Scales-21 (DASS-21).*** The short version of the Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995b) is a 21-item instrument assessing severity levels of depression, anxiety and stress. It demonstrated a strong internal consistency of $\alpha = 0.93$ in the original validation study (Lovibond & Lovibond, 1995a). In clinical samples, it has shown internal consistencies of $\alpha = 0.94$, 0.87 and 0.91 for the three scales respectively (Page et al., 2007). In the present research, baseline Cronbach's alpha for the three scales were .90, .86 and .86, respectively.

***Borderline Symptoms List 95 (BSL-95).*** The BSL-95 (Bohus et al., 2007) is for specific assessment of borderline-typical symptomatology, consisting of 95 subjective complaints and impairments commonly reported by individuals with BPD. The BSL-95 was revealed to have 7 factors: self-perception, affect regulation, self-destruction, dysphoria, loneliness, intrusions and hostility. The psychometric study reported high internal consistency and test-retest reliability ($\alpha$ = 0.97 and $r$ = 0.80, $p$ < .001 respectively) (Bohus et al., 2007). The baseline alpha coefficients for BSL-95 subscales in this study were .68 to .93.

***Inventory of Interpersonal Problems (IIP-32).*** The IIP-32 (Horowitz et al., 2000) is a self-report tool that identifies one's most salient interpersonal difficulties and consists of 32 items. It is the shorter form of the original IIP that contained 127 items (Horowitz et al., 1988), comprising eight interpersonal dimensions of: domineering/controlling, vindictive/self-centred, cold/distant, socially inhibited, nonassertive, overly accommodation, self-sacrificing, intrusive/needy. The IIP-32's internal consistency ranged from .67 to .88 across the eight scales in the current sample at baseline.

***Internalized Shame Scale (ISS).*** The ISS (Cook, 1988; Cook et al., 2001) contains 30 items to measure internalized shame. It comprises two subscales: total shame and self-esteem. The latter was adapted from the RSES (Cook et al., 2001). Internal consistencies for the total shame subscale were $\alpha$ = 0.96 and 0.95 for clinical and non-clinical (student) samples respectively; for the self-esteem subscale, $\alpha$ = 0.87 and 0.90 in clinical and non-clinical samples respectively (Cook, 1994). In a mixed (clinical and non-clinical) sample, similar alpha coefficients of 0.97 and 0.90 were reported for both subscales (Rybak & Brown, 1996). Test-retest reliability data ranged from 0.84 (shame) to 0.69 (self-esteem) for a 7-week time frame (Cook, 1996). The ISS-S showed an internal consistency of $\alpha$ = .92 for total shame and 0.80 for self-esteem at baseline in this sample.

***Rosenberg Self-Esteem Scale (RSES).*** The RSES (Rosenberg, 1965) is a 10-item scale that measures global self-worth. It assesses both positive and negative feelings about the self. Internal consistency was shown to be $\alpha$ = 0.95 (Rosenberg, 1965) and a one-week test-retest reliability of $r$ = 0.82 (Fleming & Courtney, 1984). The RSES' alpha coefficient at baseline was .81 in the present study.

***DBT Ways of Coping Checklist (DBT-WCCL).*** The DBT-WCCL (Neacsiu et al., 2010b) is a 59-item self-report of the frequency of adaptive and maladaptive skills used to cope with stressful situations with two subscales measuring DBT skills use (DSS) and dysfunctional coping (DCS). It has demonstrated internal consistencies on these two scales of between $\alpha = 0.87$ to 0.96 (Neacsiu et al., 2010b). The DBT-WCCL has been shown effective at discriminating between individuals who have or have not completed DBT, and test-retest reliability after 4 months for individuals without DBT skills training was $\rho_I = 0.71$, $p < .001$ (Neacsiu et al., 2010b). For this study, the alternative scoring was used to calculate two types of dysfunctional coping – general dysfunctional behaviour (DCS1) and coping via blaming others (DCS2) (Neacsiu et al., 2010a). Alpha coefficients at baseline for the DSS, DCS1 and DCS2 subscales were .86, .85 and .87 respectively in this research.

***Freiburg Mindfulness Inventory (FMI).*** The FMI (Buchheld et al., 2001; Walach et al., 2006) assesses individual levels of mindfulness. The current study uses a short 14-item version, which had an internal consistency of $\alpha = .93$ in the validation study (Walach et al., 2006). The internal consistency of the FMI is this study was .80 at baseline.

### *Statistical Analyses*

***Missing data.*** Study compliance across all assessment time points was first mapped out. During these checks, missing data was found to have a monotone pattern (see Appendix G for more information regarding the pattern of missingness). Following the guidelines by Newman et al. (2014) for this type of missingness, response rate sensitivity analyses were later conducted, where the primary analyses on the full sample were compared with a subsample of research completers only.

***Preliminary analyses.*** Participants with and without complete data (referred to as data non-completers and data completers) were compared on each of the demographic characteristics and baseline scores on the outcome measures. The same was done for other possible covariates such as treatment completion (completion of the DBT program) and type of individual therapy (DBT or non-DBT). Due to the small sample size that reduced some of the expected cell counts in the contingency tables, Fisher's exact tests were used for categorical data and Mann-Whitney U tests were used for continuous data.

Changes across time for the longitudinal outcome measures were analysed with linear mixed models, with ratings nested within participants. Linear mixed modelling allowed for all available data to be used. The need for a multilevel analysis was first assessed by examining variation across participants. For each primary outcome measure, a baseline model was first fitted using only the intercept and Maximum Likelihood (ML) estimation. The latter produced more accurate estimates of fixed regression parameters (Twisk, 2006) and allowed for comparisons of models as they were developed (Field et al., 2012). Next, the null baseline model was fitted while including random intercepts across individual participants, thus controlling for their associated intraclass correlation (Pinheiro & Bates, 2000). Lastly, predictor variables (fixed effects) were added into the model.

***Primary analyses.*** A linear mixed effects model analysis with random intercepts was used to analyse participants' scores on each of the primary outcomes measures over time. Primary outcomes were scores on the DERS and DASS-21, which were measured over 11 time points in total. Secondary or exploratory outcomes were the remaining measures in the questionnaire battery, that were administered over the course of only four time points in total. Appendix H summarizes the scores on each outcome measure over the course of the study, which demonstrated an overall reduction in symptoms together with increases in skills use.

Scores on primary outcomes were modelled with fixed effects of assessment time points (every 3 weeks; Time 1 through Time 11) and treatment completion (a binary variable to indicate completion or dropout from the DBT program). Both time and treatment completion were treated as categorical variables with 11 and 2 levels respectively, while all outcome variables were continuous. This allowed for an examination of how scores changed over the course of the study, while the fixed effect of treatment completion addressed the research question regarding whether participants who completed the program differed in these outcomes compared to non-completers. To account for the within-subjects design, each participant was included as a random effect. The reference group for time was set to Time 1, and the reference category for treatment completion was set to non-completers.

An interaction term was not included due to the small sample size for non-completers. With only 7 non-completers and the limited information available for this subgroup, an interaction term might result in unreliable estimates, risk overfitting the model and limit the generalizability of the

interaction effect to non-completers. Without it, the model would thus be more parsimonious and straightforward to interpret, providing more stable estimates for main effects (Gygi et al., 2023). To confirm this, exploratory analyses were run with the interaction term 'Time x Completion' using the primary outcomes, which showed that the term did not improve model fit. The final model for primary outcomes specified was as follows: Outcome Measure (Response Variable) ~ Time + Completion + (1|Participant).

Scores on secondary outcomes were modelled with fixed effects of assessment time points only, as there were fewer measurements taken (i.e. ,Time 1, Time 3, Time 7 and Time 11). The final model for secondary outcomes was: Outcome Measure ~ Time + (1|Participant). Similar to the model for primary outcomes, the reference group for time was set to Time 1.

Although ML was used in the preliminary analyses, Restricted Maximum Likelihood (REML) with a small sample Satterthwaite approximation (Satterthwaite, 1946) was eventually selected for the estimation of model parameters due to a limited sample size. REML is particularly useful given the inclusion of random effects, and considered more reliable than ML in providing a less biased estimate of variance components (Browne & Draper, 2006; Verbeke & Molenberghs, 2000; Thompson, 1962). A comparison by Turner et al. (2021) of six statistical methods for interrupted timeseries also concluded that REML estimates were preferable, being largely stable over different interrupted time series lengths. REML would thus be more applicable for short series such as in this study than other estimates such as autoregressive integrated moving average (ARIMA).

Assumptions of the models were checked individually using both graphical and statistical tests where applicable (Flatt & Jacobs, 2019). Although no clear guidelines exist on assumptions for linear mixed models, these involved assumptions typical of regression analysis, that is, tests for statistical independence of error terms, for constant variance of error terms, for normal distribution of error terms, and for linear relationships between variable (Flatt & Jacobs, 2019). Posthoc pairwise analyses were conducted mainly for the primary outcome measures, in order to understand the results more in-depth.

Analyses were conducted using R (R Core Team, 2023) and RStudio (Posit team, 2023). Specifically, the 'lme()' functions from R packages 'nlme' were used (Pinheiro et al., 2023). A

segmented regression analysis was considered, but not applied due to having an insufficient number of time points.

***Sensitivity analyses.*** To assess the robustness of the findings and address possible biases introduced by missing data, sensitivity analyses were run by examining results from data completers (i.e., participants who completed all assessments regardless of DBT treatment adherence) and treatment completers (i.e., participants who completed the full course of DBT as intended) before identifying any discrepancies in outcomes from analyses run with the full dataset. For the primary outcomes (DERS and DASS-21), separate analyses for data completers but not treatment completers were conducted, as the linear mixed model equation involved examining treatment completion as a fixed effect and two groups (completers versus non-completers) were thus required for comparison. For secondary outcomes (all other self-report measures), separate analyses for data completers and treatment completers were conducted to examine whether these differed with conclusions from the main analyses.

## Results

### *Baseline Differences*

Differences between participants with complete data (i.e., data completers; $n = 21$) versus incomplete data (i.e., data non-completers; $n = 11$), participants who completed the DBT program ($n = 25$) versus those who did not complete it ($n = 7$), as well as between participants with DBT ($n = 21$) versus non-DBT ($n = 11$) individual therapists were examined. As there were an uneven number of participants in each group, non-parametric tests (Fisher's exact tests and Mann-Whitney U tests) were performed to compare scores on all outcome measures, including subscales, between groups.

Neither data nor treatment completers were significantly different from participants who were non-completers on any of the baseline demographic characteristics, which include: age, biological sex or gender identity, race, years of education, employment status, relationship status, lifetime psychiatric hospitalizations, present psychiatric medication use and family psychiatric history. These are presented in Table 8 below.

**Table 8**

*Participant Characteristics According to Data or Treatment Completion*

| Characteristic | Data Completion | | | | | Treatment Completion | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Fisher's Exact Test | | Mann-Whitney U Test | | | Fisher's Exact Test | | Mann-Whitney U Test | | |
| | Value | *p* | Z-score | *U* | *p* | Value | *p* | Z-score | *U* | *p* |
| Age | | | -0.678 | 98.50 | .498 | | | -0.092 | 85.50 | .927 |
| Gender | 2.125 | .468 | | | | 0.854 | .720 | | | |
| Race | 5.005 | .222 | | | | 4.273 | .317 | | | |
| Relationship Status | - | .637 | | | | 0.123 | 1.000 | | | |
| Education (Years) | | | -0.461 | 104.00 | .645 | | | -0.806 | 70.00 | .421 |
| Employment | 0.768 | 1.000 | | | | 3.119 | .432 | | | |
| Hospitalizations | - | .139 | | | | 2.302 | .212 | | | |
| Psychiatric Medications | - | 1.000 | | | | 2.130 | .377 | | | |
| Family Psychiatric History | 3.784 | .154 | | | | 0.596 | 1.000 | | | |
| Social Support | 4.371 | .878 | | | | 5.393 | .213 | | | |

*Note.* Fisher's exact test does not use an intermediate test statistic, but directly calculates the p-value (e.g., unlike chi-square test, which calculates the p-value based on a chi-square test statistic).

No significant differences were found between data completers and non-completers on any self-reported outcome measures at baseline, except for the ISS self-esteem scale, $U = 51.50$, $p = .011$ (see Table 9 for more information).

As for comparisons between treatment completers and non-completers, there were significant between-group differences at Time 1 in most of the primary outcome measures (namely, the DERS total score, the DASS-21 Depression and the DASS-21 Anxiety: see Table 9). In addition, treatment completers showed significant differences in selected subscales on the DERS, which were the impulse control difficulties and lack of emotional clarity. There was a significant difference in one of the secondary outcome measures between treatment completers and non-completers, that is, the ISS Shame scale, $U = 44.50$, $p = .050$. No other differences were found.

**Table 9**

*Baseline Differences in Scores between Participants who Completed Research & Clinical Programs*

| Subscale or Scale | Data Completion | | | | | Treatment Completion | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean Ranks | | Between-group comparisons | | | Mean Ranks | | Between-group comparisons | | |
| | Data Completers (*n* = 21) | Non-Completers (*n* = 11) | Z-score | *U* | *p* | Treatment Completers (*n* = 25) | Non-Completers (*n* = 7) | Z-score | *U* | *p* |
| DERS Total | 15.43 | 18.55 | -0.89 | 93.00 | .372 | 14.36 | 24.14 | **-2.44** | **34.00** | **.015** |
| DERS NONACCEPT | 16.43 | 16.64 | -0.06 | 114.00 | .952 | 16.10 | 17.93 | -0.46 | 77.50 | .647 |
| DERS GOALS | 15.33 | 18.73 | -0.98 | 91.00 | .327 | 15.20 | 21.14 | -1.49 | 55.00 | .135 |
| DERS IMPULSE | 14.95 | 19.45 | -1.29 | 83.00 | .196 | 14.74 | 22.79 | **-2.01** | **43.50** | **.044** |
| DERS AWARE | 15.36 | 18.68 | -0.96 | 91.50 | .339 | 15.64 | 19.57 | -0.98 | 66.00 | .325 |
| DERS STRATEGIES | 16.10 | 17.27 | -0.57 | 107.00 | .735 | 14.84 | 22.43 | -1.90 | 46.00 | .058 |
| DERS CLARITY | 16.33 | 16.82 | -0.74 | 101.00 | .458 | 14.26 | 24.50 | **-2.56** | **31.50** | **.010** |
| DASS-21 Depression | 14.86 | 19.64 | -1.37 | 81.00 | .169 | 14.46 | 23.79 | **-2.33** | **36.50** | **.020** |
| DASS-21 Anxiety | 15.31 | 18.77 | -1.00 | 90.50 | .320 | 14.56 | 23.43 | **-2.22** | **39.00** | **.027** |
| DASS-21 Stress | 15.07 | 19.23 | -1.19 | 85.50 | .233 | 15.00 | 21.86 | -1.71 | 50.00 | .087 |
| BSL-95 Global Factor | 15.31 | 18.77 | -0.99 | 90.50 | .321 | 14.94 | 22.07 | -1.78 | 48.50 | .075 |
| BSL-95 Self-Perception | 15.43 | 18.55 | -0.89 | 94.00 | .372 | 14.98 | 21.93 | -1.73 | 49.50 | .083 |
| BSL-95 Affect Regulation | 14.62 | 20.09 | -1.57 | 76.00 | .117 | 15.16 | 21.29 | -1.53 | 54.00 | .126 |
| BSL-95 Self-Destruction | 15.55 | 18.32 | -0.80 | 95.50 | .427 | 15.30 | 20.79 | -1.38 | 57.50 | .171 |
| BSL-95 Dysphoria | 15.10 | 19.18 | -1.18 | 86.00 | .239 | 16.48 | 16.57 | -0.02 | 87.00 | .982 |
| BSL-95 Loneliness | 14.64 | 20.05 | -1.55 | 76.50 | .121 | 15.38 | 20.50 | -1.28 | 59.50 | .201 |
| BSL-95 Intrusion | 15.90 | 17.64 | -0.50 | 103.00 | .620 | 14.84 | 22.43 | -1.89 | 46.00 | .058 |
| BSL-95 Hostility | 15.83 | 17.77 | -0.56 | 101.50 | .578 | 15.74 | 19.21 | -0.87 | 68.50 | .386 |
| BSL-95 Global Well-Being | 16.95 | 15.64 | -0.38 | 106.00 | .703 | 17.50 | 12.93 | -1.16 | 62.50 | .248 |
| IIP-32 Total T score | 14.83 | 19.68 | -1.39 | 80.50 | .164 | 15.20 | 21.24 | -1.48 | 55.00 | .138 |
| ISS Internal Shame | 14.36 | 20.59 | -1.79 | 70.50 | .074 | 14.78 | 22.64 | **-1.96** | **44.50** | **.050** |
| ISS Self-Esteem | 19.55 | 10.68 | **-2.55** | **51.50** | **.011** | 17.40 | 13.29 | -1.03 | 65.00 | .302 |
| RSES | 18.52 | 12.64 | -1.70 | 73.00 | .090 | 18.08 | 10.86 | -1.81 | 48.00 | .070 |
| DBT-WCCL DSS | 18.00 | 13.64 | -1.25 | 84.50 | .210 | 17.96 | 11.29 | -1.67 | 51.00 | .095 |
| DBT-WCCL DCS | 15.67 | 18.09 | -0.70 | 98.00 | .487 | 15.74 | 19.21 | -0.87 | 68.50 | .385 |
| DBT-WCCL DCS 1 | 16.26 | 16.95 | -0.20 | 110.50 | .842 | 15.66 | 19.50 | -0.96 | 66.50 | .337 |
| DBT-WCCL DCS 2 | 15.60 | 18.23 | -0.76 | 96.50 | .448 | 16.08 | 18.00 | -.048 | 77.00 | .630 |
| FMI | 18.19 | 13.27 | -1.41 | 80.00 | .158 | 16.74 | 15.64 | -0.27 | 81.50 | .784 |

*Note.* Significant values are reflected in bold. For abbreviations, see next page.

Abbreviations Used in Table 9: DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS = Dysfunctional coping scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory.

No significant differences were found across the outcome measures between participants with DBT and non-DBT individual therapists (see Table 10) except on the DBT-WCCL DBT skills subscale (DSS), $U = 53.50$, $p = .009$.

**Table 10**

*Baseline Differences between Participants with DBT and Non-DBT Individual Therapy*

| Subscale or Scale | Mean Ranks | | Analysis Results | | |
|---|---|---|---|---|---|
| | DBT ($n = 20$) | Non-DBT ($n = 12$) | Z-score | *U* | *p* |
| DERS Total | 17.15 | 15.42 | -0.51 | 107.00 | .613 |
| DERS NONACCEPT | 17.13 | 15.46 | -0.49 | 107.50 | .625 |
| DERS GOALS | 16.10 | 17.17 | -0.31 | 112.00 | .754 |
| DERS IMPULSE | 17.10 | 15.50 | -0.47 | 108.00 | .640 |
| DERS AWARE | 18.88 | 12.54 | -1.86 | 72.50 | .063 |
| DERS STRATEGIES | 17.23 | 15.29 | -0.57 | 105.50 | .571 |
| DERS CLARITY | 15.55 | 18.08 | -0.74 | 101.00 | .458 |
| DASS-21 Depression | 15.35 | 18.42 | -0.90 | 97.00 | .369 |
| DASS-21 Anxiety | 17.03 | 15.63 | -0.41 | 109.50 | .682 |
| DASS-21 Stress | 15.18 | 18.71 | -1.03 | 93.50 | .301 |
| BSL-95 Global Factor | 15.23 | 18.63 | -0.99 | 94.50 | .321 |
| BSL-95 Self-Perception | 15.53 | 18.13 | -0.76 | 100.50 | .448 |
| BSL-95 Affect Regulation | 16.28 | 16.88 | -0.18 | 115.50 | .861 |
| BSL-95 Self-Destruction | 14.88 | 19.21 | -1.27 | 87.50 | .205 |
| BSL-95 Dysphoria | 15.13 | 18.79 | -1.08 | 92.50 | .281 |
| BSL-95 Loneliness | 16.03 | 17.29 | -0.37 | 110.50 | .711 |
| BSL-95 Intrusion | 15.90 | 17.50 | -0.47 | 108.00 | .640 |
| BSL-95 Hostility | 14.78 | 19.38 | -1.35 | 85.50 | .179 |
| BSL-95 Global Well-Being | 18.28 | 13.54 | -1.40 | 84.50 | .161 |
| IIP-32 Total T score | 16.63 | 16.29 | -.059 | 117.50 | .557 |
| ISS Internal Shame | 16.45 | 16.58 | -0.04 | 119.00 | .969 |
| ISS Self-Esteem | 14.18 | 20.38 | -1.82 | 73.50 | .069 |
| RSES | 15.75 | 17.75 | -0.59 | 105.00 | .557 |
| DBT-WCCL DSS | 13.18 | 22.04 | **-2.59** | **53.50** | **.009** |
| DBT-WCCL DCS | 16.08 | 17.21 | -0.33 | 111.50 | .740 |
| DBT-WCCL DCS 1 | 16.70 | 16.17 | -0.16 | 116.00 | .876 |
| DBT-WCCL DCS 2 | 14.45 | 19.92 | -1.61 | 79.00 | .109 |
| FMI | 15.18 | 18.71 | -1.03 | 93.50 | .301 |

DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of

***(continued on p.71)***

(Continued). emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS = Dysfunctional coping scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory.

### *Results of Primary Analyses*

Linear mixed model analyses were conducted with time and treatment completion as fixed effects, a random intercept, and each of the primary outcome measures (DERS total score, DERS subscales and DASS-21 scales) as the dependent variable. As part of model development, ML analyses were first run for the DERS total score and the DASS-21 scales as dependent variables to compare between models, and the results of these preliminary analyses are presented in Appendix I (Table I1). The final model for each primary outcome used REML analyses, and Appendix I (Table I2) provides a summary of the fixed and random effects estimates and their significance for all primary outcomes including DERS subscales. Visual inspection of the data showed that differences between the results of ML and REML analyses were not vastly different in terms of effect sizes; the differences mainly lay in the estimates of random effects.

Linear mixed model analyses were then conducted with time as a fixed effect, a random intercept, and each of the secondary outcome measures (BSL-95, IIP-32, ISS, RSES, DBT-WCCL and FMI scales) as the dependent variable. Consistent with the analyses for primary outcomes, REML was selected. As part of model development, I compared these models fitted with time versus time and treatment completion as fixed effects (Appendix I, Table I3). The simpler model was chosen, for reasons explained under the Statistical Analyses section outlined earlier.

Results for each of these models will be outlined below.

***Outcomes on the DERS (primary outcome).*** For the DERS total scores, the intercept ($\beta$ = 145.27, $SE$ = 8.10, $p < .001$) shows the estimated DERS scores at Time 1 for participants who did not complete the program (i.e., the reference group, $n$ = 7). The results of this analysis indicated that there were significant effects starting from Time 4 (right after the first skills module had been completed; $t(270) = -4.90$) to Time 11, $t(270) = -9.93$, all $p$s < .001, outlining the decrease in DERS total scores

as compared to Time 1. A significant negative relationship was also found between treatment completion and DERS total scores, with treatment completers ($n$ = 25) showing lower scores of approximately $\beta$ = 24.62, $SE$ = 8.92, $t$(30) = -2.76, $p$ = .01.

Assumptions were checked and no violations were found. Approximately 33.70% of the variance in DERS total scores was explained by time and treatment completion, while approximately 44.99% of the variance in DERS total scores was explained by the random effects (variation across participants). Model fit indices for the DERS total scores, including the Akaike information criterion (AIC) and Bayesian information criterion (BIC), indicated values of 2586.94 and 2638.80 respectively (see Appendix I, Table I4).

For the DERS subscale scores, intercepts for the reference group ranged from $\beta$ = 18.94 to 34.55, $SE$ = 1.30 to 2.49, all $p$s <.0001. The results showed that all the subscales followed the same pattern as the DERS total scores except for the DERS AWARE, which did not show significant differences from baseline until Time 6 (between modules 3 and 4 in the group skills training curriculum). This meant that emotion regulation difficulties due to a lack of emotional awareness required a longer time to change, and gradual improvements continued to be seen until the end of the follow-up period. Regarding differences in DERS subscale scores between treatment completers and non-completers, only the DERS GOALS ($\beta$ = -3.86, $SE$ = 1.66, $t$(30) = -2.33, $p$ = .027), DERS IMPULSE ($\beta$ = -5.70, $SE$ = 2.04, $t$(30) = -2.80, $p$ = .009) and DERS STRATEGIES ($\beta$ = -7.07, $SE$ = 2.72, $t$(30) = -2.60, $p$ = .014) showed significance. This meant that treatment completers were more likely to report lower difficulties in the areas of engaging in goal-directed behaviour, impulse control difficulties and limited access to emotion regulation strategies.

Post-hoc pairwise comparisons were conducted, where DERS SUM results were averaged over the levels of treatment completion, and $p$-values were adjusted for multiple comparisons using the Bonferroni correction. Table I5 in Appendix I presents the pairwise differences between different Time condition (1 through 11) on DERS total scores. The results showed that participants improved in their DERS scores even after completing just one DBT skills module at Time 4 ($M$ = 109.09, $SD$ = 24.87), which was significantly different when compared to the pre-intervention assessments at Time 1 ($M$ = 126.03, $SD$ = 19.96, $p$ = .0001), Time 2 ($M$ = 122.13, $SD$ = 21.09, $p$ = .034) and Time 3 ($M$ =

121.53, *SD* = 23.57, *p* = .021). There were no significant differences among the DERS total scores between Time 1 and 2, Time 1 and 3, and Time 2 and 3. Pairwise comparisons for Time 3 to 4 (*p* = .021), Time 4 to 5 (*ns*), Time 5 to 6 (*ns*), and Time 6 to 7 (*ns*) allowed for investigation of the effects of each skills module, and demonstrated that the first out of four skills modules appeared to have visible short-term effect on DERS scores. Pairwise comparisons of DERS total scores between Time 7 (post-intervention) and Times 1, 2 and 3 allowed for examination of pre- and post-intervention differences and the overall effect of the adapted DBT program (including the full curriculum of the group skills training) which were all *p*s < .001, meaning that DERS scores were significantly reduced. This reduction was maintained across the three months of follow-up. There were no significant differences between Time 7 and any of the subsequent follow-up time points.

***Outcomes on the DASS-21 (primary outcome).*** Intercepts for the DASS-D, DASS-A and DASS-S were $\beta$ = 31.25 (SE = 3.53, *p* < .001), $\beta$ = 28.40 (SE = 3.54, p < .001) and $\beta$ = 28.55 (SE = 3.33, *p* <.001) respectively (see Appendix I, Table I2). The linear mixed-effects model on the DASS-21 for the total sample revealed that there were significant effects of time even at Time 2 for depression and anxiety symptoms (DASS-D: *t*(270) = -1.97, *p* = .05; DASS-A: *t*(270) = -3.20, *p* = .002), and Time 3 for anxiety, *t*(270) = -3.03, *p* = .003, prior to participants commencing the DBT program. For all three subscales, this significance decreased after they started the intervention (*p*s <.001 to .037), meaning that significant improvements were shown over time on depression, anxiety and stress levels. There was no significant main effect of treatment completion for all three scales of the DASS-21. Approximately 11.51 to 13.23% of the variance in DASS-21 subscale scores was explained by time and treatment completion, while approximately 49.92 to 60.74% of the variance in DASS-21 scores was explained by the random effects. AIC values ranged from 2066.05 to 2179.15, while BIC values fell between 2117.91 to 2231.01 (see Appendix I, Table I4).

Model assumptions were checked. No violations were found except on tests of normality for the model with DASS-A scores as the dependent variable. A Shapiro-Wilk test showed that the distribution of DASS-A scores departed significantly from normality (*W* = 0.99, *p* = 0.02). Based on this pattern, the alpha levels were adjusted to .01 to accommodate possible Type 1 errors, following the standard practice in statistical hypothesis testing (e.g., Agresti and Finlay, 2009; Montgomery,

2017). The findings retained levels of significance. Time and treatment completion explained approximately 11.51 to 13.23% of the variance in DASS-21 scores, while approximately 68.56 to 73.22% of the variance was explained by random effects. AIC ranged from 2066.05 to 2179.15, and BIC from 2117.91 to 2231.01.

Posthoc pairwise comparisons for the three DASS-21 scales using the Bonferroni correction are presented in Tables I6 to I8 in Appendix I.

For depressive symptoms, pairwise comparisons showed that compared to the baseline (Time 1; $M = 25.44$, $SD = 11.72$), participants showed significant differences starting from after the second DBT skills module or at Time 5 ($M = 17.38$, $SD = 10.62$, $p = .004$). This significance disappeared at three weeks after completion of the program or at Time 8 ($M = 18.00$, $SD = 11.17$, $p = .156$), but returned at the six-week follow-up (Time 9; $M = 15.83$, $SD = 11.78$, $p = .002$) and was sustained until the final follow-up assessment (Time 11; $M = 15.00$, $SD = 11.84$, $p = .0002$). Although there were no significant differences in DASS-D scores between Time 1 and Time 2 ($M = 21.87$, $SD = 9.17$, $p = 1.00$) or Time 1 and Time 3 ($M = 23.44$, $SD = 11.82$, $p = 1.00$), it was observed that DASS-D scores already started to reduce slightly before commencement of the DBT skills group right after Time 3. DASS-D scores at Time 2 scores showed no significant differences with any of the other time points measured. The decline in DASS-D scores from Time 3, as measured by pairwise differences, only started showing significance at Time 10 ($M = 14.69$, $SD = 13.48$, $p = .01$), which remained at Time 11 ($p = .018$). There were no significant differences in pairwise comparisons of DASS-D scores between each of the DBT skills modules.

For anxiety symptoms, improvements were visible after the first DBT skills module was completed at Time 4 ($M = 18.69$, $SD = 10.81$) when compared with the baseline (Time 1; $M = 23.44$, $SD = 11.63$, $p = .005$). With adjusted alpha values, this significance disappeared after the second skills module or at Time 5 ($M = 17.52$, $SD = 10.15$, $p = .013$), and reappeared from Time 6 onwards, until the final follow-up (all $p$s < .0001 to .0001). Similar to the DASS-D, DASS-A scores did not significantly differ between Times 1 and 2 ($M = 19.07$, $SD = 9.68$, $p = .086$), or between Times 1 and 3 ($M = 19.06$, $SD = 11.79$, $p = .150$) but it was noted that these already showed a pattern of decline before commencement of group skills training. DASS-A scores at Time 2 showed a near-significant

pairwise comparison with Time 7 ($M$ = 12.15, $SD$ = 8.82, $p$ = .012), which was when participants completed the group. The pairwise comparison of DASS-A scores at Times 3 and 7 was significant ($p$ = .004). However, subsequent Time points (Times 8, 9, 10 and 11) showed non-significant differences on the DASS-A regardless of comparison with Time 2 (all $p$s = .030 to 1.00) or Time 3 (all $p$s = .011 to 1.00). Regarding changes between DBT skills modules, there were no significant differences found on the DASS-A.

For stress levels, pairwise comparisons of DASS-S scores from Time 1 ($M$ = 25.00, $SD$ = 11.00) showed significance starting from Time 6 ($M$ = 18.07, $SD$ = 10.64, $p$ = .003), which was sustained until the final follow-up (Time 11; $M$ = 14.38, $SD$ = 9.53, $p$ < .0001). As with the other DASS-21 scales, DASS-S scores did not show any significant differences when the baseline was compared with other pre-intervention assessment time points, that is. Time 2 ($M$ = 22.20, $SD$ = 9.66, $p$ = 1.00) and Time 3 ($M$ = 23.38, $SD$ = 10.51, $p$ = 1.00). Pairwise comparisons for DASS-S scores between Times 2 and 10 ($M$ = 15.31, $SD$ = 10.10), and Times 2 and 11 were significant ($p$ = .013 and $p$ = .001 respectively). Pairwise comparisons of DASS-S scores between Times 3 and 7 ($M$ = 16.67, $SD$ = 9.58), as well as Times 3 and 8 ($M$ = 16.56, $SD$ = 8.57) were significant ($p$ = .011 and $p$ = .025 respectively), but not between Times 3 and 9 ($M$ = 17.83, $SD$ = 10.89, $p$ = .135). Subsequently, DASS-S scores again showed a significant difference between Time 3 and 10 ($M$ = 15.31, $SD$ = 10.10, $p$ = .0006), which was also observed at Time 11 ($p$ < .0001). No significant between-module changes on the DASS-S were reflected in the pairwise comparisons for Time 3 to 4, Time 4 to 5, Time 5 to 6, and Time 6 to 7.

Similar to the posthoc analysis on the DERS, all three DASS-21 scales showed no significant differences between Time 7 and any of the follow-up time points. This meant that the most noticeable or significant changes took place while participants were undergoing the DBT program itself (from Time 3 to Time 7).

***Secondary outcomes.*** A simplified linear mixed-effects model was run with time as a fixed effect and individual participant as a random effect for all other outcome measures, and results for the total sample are presented in Appendix I (Table I9). Similar findings were obtained across all but two of the scales. The intercept for the BSL-95 Global Factor was $\beta$ = 2.16 ($SE$ = 0.15, $p$ < .001), while

intercepts for the BSL-95 subscales ranged from $\beta = 1.34$ to 2.91 ($SE = 0.10$ to 0.19, all $p$s $< .001$). The intercept for the IIP-32 T-score was $\beta = 73.00$, $SE = 3.35$, $p < .001$. The intercepts for the ISS Internal Shame and ISS Self-Esteem scales were $\beta = 71.72$, $SE = 1.88$ and $\beta = 7.81$, $SE = 0.75$ respectively, all $p$s $< .001$. The intercept for the RSES was $\beta = 8.69$, $SE = 0.83$, $p < .001$. Intercepts for the DBT-WCCL scales ranged from $\beta = 1.50$ to 2.17, $SE = 0.07$ to 0.13, all $p$s $< .001$. Lastly, the intercept for the FMI was $\beta = 28.00$, $SE = 1.10$, $p < .001$.

The linear mixed-effects models revealed significant main effects of time at post-intervention (Time 7), which was sustained at the 3-month follow-up (Time 11) across all secondary outcome measures except for the ISS Self-Esteem and DBT-WCCL DCS 2. These two scales did not show a significant change from the Time 1 intercepts at Time 7, but scores reflected significant reductions by Time 11 (ISS Internal Shame: $t(82) = 2.12$, $p < .037$; DBT-WCCL DCS 2: $t(82) = 0.14$, $p < .04$).

In checks of model assumptions, violations of normality were found for two models, containing the ISS Internal Shame score and DBT-WCCL DCS 1 score as dependent variables. A Shapiro-Wilk test showed that the distribution of both scores departed significantly from normality (ISS Internal Shame: $W = 0.96$, $p = .001$; DBT-WCCL DCS 1: $W = 0.97$, $p = .009$). Alpha levels were thus adjusted to .01, which did not change the significance of main effects. Across all secondary outcomes, the random effects explained a larger proportion of the variance in the self-reported scores (ranging from approximately 46.57% of the BSL-95 Global Well-Being scores to 75.07% in the DBT-WCCL DCS 2 scores) as compared to the amount of variance explained by time (which ranged from as low as approximately 1.26% of the BSL-95 Hostility scores to 22.49% of the FMI scores). Model fit indices for all secondary outcomes are outlined in Appendix I (Table I10).

***Results of Secondary Analyses***

***Sensitivity analyses involving data completers.*** Across all primary and secondary outcome measures, the same models were fitted using a dataset comprised of participants with complete data ($n = 21$), and model assumptions were checked for each one. Tests of normality for the models with DERS GOALS, DERS IMPULSE, DASS-A and BSL Intrusion scores as the dependent variable were found to have violations, as reflected by Shapiro-Wilk test scores ($W = 0.98$, $p = 0.01$; $W = 0.99$, $p = 0.05$; $W = 0.98$, $p = 0.004$; $W = 0.95$, $p = 0.003$ respectively). The alpha levels were thus adjusted to

.01 for these models. Results of these analyses are summarized in Appendix I (Table I11), and explained here.

The intercept for DERS total scores ($\beta$ = 157.29, *SE* = 15.45, $p < .001$) showed slightly higher difficulties with emotion regulation at baseline than the intercept in the total sample. The same pattern of changes in scores over time was evident in data completers, where a significant decline in DERS scores was evident from Time 4 and onwards (all *p*s <.001). In the sample of data completers, treatment completers ($n$ = 19) also showed lower scores of approximately $\beta$ = 37.06 (*SE* = 15.96, $p$ = .032) compared to treatment non-completers ($n$ = 2). The AIC and BIC was 1902.57 and 1950.02 respectively (see Appendix I, Table I12). Among the DERS subscale scores, intercepts for the reference group among data completers ranged from $\beta$ = 20.03 to 36.77, *SE* = 2.18 to 4.80, all *p*s <.0001.

The results did not differ from that of the total sample, where only the DERS AWARE scores reflected a different pattern of change from the other subscales, showing significant reductions from Time 6 ($\beta$ = -2.05, *SE* = 0.83, $p$ = .015) and onwards, which was sustained at the final follow-up ($\beta$ = -3.67, *SE* = 0.83, $p$ <.001). Unlike the results generated from all participants, examining data completers-only found that treatment completers and non-completers showed significant differences on the DERS NONACCEPT ($\beta$ = -7.62, *SE* = 3.14, $p$ = .026) and DERS CLARITY ($\beta$ = -4.98, *SE* = 2.23, $p$ = .038) subscales; between-group differences on the DERS IMPULSE lost significance after alpha adjustments ($\beta$ = -7.54, *SE* = 3.47, $p$ = .043).

DASS-D, DASS-A and DASS-S intercepts were $\beta$ = 28.10 (SE = 6.99, $p < .001$), $\beta$ = 29.57 (SE = 6.22, $p < .001$) and $\beta$ = 26.81 (SE = 5.79, $p$ <.001) respectively. As with the DERS total scores, the patterns of change in these DASS-21 scales for data completers did not differ from that of the total sample, where there were significant effects of time at Time 2 for depression and anxiety symptoms (DASS-D: $t(200) = -2.02$, $p$ = .045; DASS-A: $t(200) = -2.62$, $p$ = .009).

Unlike the total sample, significance for the DASS-A disappeared at Time 3 with a more stringent alpha level of 0.01, $t(200) = -2.46$, $p$ = .015. Once the intervention started (Time 4 and onwards), significant improvements were found across all DASS-21 scales and sustained until the last assessment time point – starting with the DASS-A at Time 4, $t(200) = -2.90$, $p$ = .004, and the DASS-

D and DASS-S at Time 5 ($t(200) = -2.89$, p = .004 and $t(200) = -.2.40$, $p = .017$ respectively). There were no significant main effects of treatment completion across all DASS-21 scales. The AIC values ranged from 1505.90 to 1580.87, while BIC values ranged from 1553.35 to 1628.32.

For the secondary outcomes, the results of the linear mixed-effects model yielded largely similar outcomes as that of the total sample, with some differences seen on the BSL-95 Dysphoria and Intrusion subscales, as well as the ISS Self-Esteem and DBT-WCCL DCS 2 scales. Firstly, the intercept for the BSL-95 Global Factor was $\beta = 2.05$ ($SE = 0.17$, $p < .001$). Intercepts for the BSL-95 subscales ranged from $\beta = 1.24$ to 2.81 ($SE = 0.13$ to 0.24, all $p$s $< .001$). The intercept for the IIP-32 T-score was $\beta = 70.10$, $SE = 2.37$, $p < .001$. The intercept for the ISS Internal Shame was $\beta = 69.71$, $SE = 4.21$, while that of the ISS Self-Esteem scale was $\beta = 9.14$, $SE = 0.94$, all $p$s $< .001$. The intercept for the RSES was $\beta = 9.62$, $SE = 1.00$, $p < .001$. Intercepts for the DBT-WCCL scales fell in the range of $\beta = 1.44$ to 2.16, $SE = 0.09$ to 0.14, all $p$s $< .001$.

With the exception of the four identified scales, all secondary outcomes showed a significant main effect of time at post-intervention (Time 7), that was sustained at the three-month follow-up (Time 11). The intercept for the FMI was $\beta = 28.90$, $SE = 1.39$, $p < .001$. On the BSL-95, the Dysphoria scale showed no significant main effect of time until Time 11, $t(60) = 2.38$, $p =. 021$, while the Intrusion scale showed a main effect of $t(60) = -3.40$, $p =.001$ at Time 7, but this significance disappeared at Time 11 after an alpha adjustment to 0.01, $t(60) = -2.46$, $p = .016$. No significant main effects were found for the ISS Self-Esteem and DBT-WCCL DCS 2, on the other hand.

***Sensitivity analyses involving treatment completers.*** Next, the linear mixed models were also run on a dataset comprised of participants who had completed the treatment ($N = 25$), only for secondary outcomes. The reasons for not re-running the analyses on primary outcomes were explained in the Statistical Analyses section. Model assumptions were checked, and the normality assumption was violated for two models containing the BSL GWB and DBT-WCCL DCS 1 as dependent variables ($W = 0.97$, $p = 0.02$; $W = 0.97$, $p = 0.01$ respectively), which led to adjustments of alpha levels for these two models to 0.01 to indicate statistical significant results. The results of these analyses are presented in Table I13 of Appendix I. The intercept for the BSL-95 Global Factor was $\beta = 2.03$ ($SE = 0.15$, $p < .001$), and the other BSL-95 subscales' intercepts fell between $\beta = 1.16$ to 2.37

(*SE* = 0.11 to 0.21, all *p*s < .001). The intercept for the IIP-32 T-score was $\beta$ = 70.12, *SE* = 2.08, *p* < .001. The intercepts for the ISS Internal Shame and Self-Esteem scales were $\beta$ = 70.28, *SE* = 3.68 and $\beta$ = 8.28, *SE* = 0.87 respectively, all *p*s < .001. The intercept for the RSES was $\beta$ = 9.40, *SE* = 0.96, *p* < .001. Intercepts for the DBT-WCCL scales ranged from $\beta$ = 1.47 to 2.13, *SE* = 0.08 to 0.15, all *p*s < .001.

All secondary outcomes showed a significant main effect of time at Time 7 and 11 except the BSL-95 GWB, ISS Self-Esteem and DBT-WCCL DCS 1 scales. For these three scales, there was no significant main effect of time at Time 7 (BSL-95 GWB: $t(71) = 2.29$, $p = .025$; ISS Self-Esteem: $t(71) = 1.52$, $p = 1.32$; DBT-WCCL DCS 1: $t(71) = -2.80$, $p = .007$). Significance was achieved by Time 11 (BSL-95 GWB: $t(71) = 2.75$, $p = .008$; ISS Self-Esteem: $t(71) = 2.15$, $p = .035$; DBT-WCCL DCS 1: $t(71) = -2.43$, $p = .018$). This meant that for treatment completers alone, significant improvements were observed across all secondary outcome measures. The AIC values ranged from 80.03 to 846.63, while BIC values ranged from 95.36 to 861.95 (see Appendix I, Table I14).

**Discussion**

The findings from linear mixed modelling illustrate that there were positive changes in several outcome measures following the adapted DBT program. The first result of interest is that there was a significant main effect of time on the DERS total scores immediately after participants completed module 1 of DBT skills training, and this finding was consistent even when self-reported scores from a subset of the sample (participants with complete data) were analysed. An examination of the DERS subscales showed all the subscales followed this pattern apart from the DERS AWARE, which only showed significant main effects of time after several sessions of the group skills training. Again, this observation held true across analyses based on the total sample and on data completers-only. Main effects of treatment completion were less robust – the model fitted for the total sample indicated that participants who completed the program fared better on DERS subscales of GOALS, IMPULSE and STRATEGIES. However, these main effects disappeared when only data completers were taken into account. Instead, the analyses for this subset showed main effects of treatment completion for two different subscales of DERS NONACCEPT and DERS CLARITY.

For the DASS-21, a main effect of time was seen in depression and anxiety scores as early as

Time 2, but its significance disappeared for depression by Time 3. When only data completers were analysed, all significant main effects for the DASS-21 disappeared at Time 3. The three scales (DASS-D, DASS-A and DASS-S) showed significant main effects of time at Time 4 or after the first skills module, (effect sizes were calculated using Cohen's *d*, which ranged from -0.91 to -0.48 for the total sample). By the end of the program (Time 7), large effects were evident ($d$ = -1.48 to -0.99). These decreased three weeks later at the next assessment time point ($d$ = -1.06 to -0.74), but by the three-month follow-up, the main effects of time for the DASS-D ($d$ = -1.14) and DASS-S ($d$ = -1.39) exceeded the values at post-intervention, while the DASS-A did not ($d$ = -1.44). When analysing only complete cases, the same trends in the DASS-21 was shown. One explanation for this pattern could be that participants experienced an alleviation of anxiety throughout the program and until its ending, following which there was a slight increase seen, although not equivalent to anxiety levels at baseline. This could be explained by some of the limited literature on endings in therapy, which posits that therapy termination can be experienced by service users as distressing, such as a time of crisis or a loss of relationship (Quintana, 1993). Curiously, individual therapists, both DBT and non-DBT, decreased the frequency of their sessions after the DBT program from $M$ = 4.78 ($SD$ = 1.74) to 2.27 ($SD$ =. 2.48), which could mean that participants were needing to cope with transition in both individual and group therapy around the same time frame (Table 3).

Regarding secondary outcomes, linear mixed model analyses on the total sample showed that outcomes were as hypothesized, with the ISS Self-Esteem and DBT-WCCL DCS 2 scales showing a more gradual change. This meant that participants perceived themselves more positively and reduced coping through blaming others three months after the ending of the DBT program. When re-running the same analyses for complete cases however, there were no main effects for these two scales, as well as for the BSL-95 Intrusion scale. Although it may appear the symptoms related to intrusive experiences did not significantly decrease for data completers, it should be noted that the value of the intercept ($\beta$ = 1.24, $SE$ = 0.17, $p < .001$) was considerably low (out of a maximum score of 4), and lower than that of the other BSL-95 subscales, the highest being the Dysphoria scale ($\beta$ = 2.81, $SE$ = 0.13, $p < .001$). I verified that that this was also the case for analyses of the BSL-95 for the total sample and for treatment completers-only, which may mean that the participants recruited into this

study generally did not experience a high severity of this symptom as compared to the other features associated with BPD. Related to self-evaluation, it was curious that the RSES showed a different result to the ISS, that is, a large and significant main effect ($d = 2.68$, $p < .001$). This is because of some similarities between the ISS Self-Esteem items and the RSES items (Cook, 1994; 2001). It is however possible that the global self-esteem described by Rosenberg (1965) differs from Cook's construct and focus on internalized shame. It would thus be beneficial to explore the participants' own self-construct, and this is where qualitative methods of research (elaborated in the later chapters of this thesis) would aid in developing more understanding of the individual's view of self and how it may or may not have changed throughout the program.

As such, the hypotheses of this study were supported, with all outcomes showing changes in the desired directions. It should be noted however, that missing data mostly belonged to participants who first dropped out of the clinical program and then did not return for scheduled study visits in the research program. Given that significant baseline differences were found between treatment completers and treatment non-completers on the primary outcome measures of the DERS, DASS-21 Depression and DASS-21 Anxiety (with non-completers reporting more severe scores; see Table 5 for more details), it may be that the adapted DBT program is not as efficacious for clients with more severe symptoms to begin with. They could very well require standard DBT instead, seeing that the adaptations made may not adequately meet their treatment needs. Treatment non-completers also scored significantly higher on the ISS Internal Shame. A strong sense of shame that led to withdrawal could be one explanation for why many treatment non-completers did not follow-up with research commitments after dropping out from the clinical program.

Another clear limitation of this study is the lack of a control group, which makes it difficult to attribute the changes reported by participants solely to the DBT intervention. Specifically, it would not be conclusive whether the DBT program alone appeared to have a short-term impact on DERS scores, as the DASS-21 scores showed a pattern of decline even among the three pre-intervention assessment time points. This raises questions about whether individual therapy alone influenced outcomes, given that participants may have been receiving individual therapy for a variable length of time or number of sessions. Significant baseline differences between participants with and without

individual DBT therapists on the DBT-WCCL DSS suggest that the latter may have had begun teaching skills on a one-on-one basis, since there was already more skills use being reported by their clients. Perhaps, to evaluate the actual impact of this, more time points could have been captured, together with therapists' or clients' reports on the actual therapeutic approach being provided leading up to the initiation of the DBT program. When this study was being designed, study team members had considered the feasibility of measuring at least four time points prior to the intervention, but this was not logistically possible due to pilot data that indicated a higher attrition rate if a client waited a longer time to start on the program.

Without controls, treatment completion was fitted into the mixed model equations since the presence of treatment dropouts provided a natural opportunity to explore any impact of attrition from the DBT program. However, the uneven numbers of treatment completers versus non-completers likely reduced statistical power especially when sub-setting the data to look at complete cases further reduced the sample size, possibly leading to false-negative results. There was the option of removing treatment completion from the equation entirely during model development, but it was found that the differences between having one fixed effect of time and two fixed effects of time and treatment completion were minimal (see Appendix I, Table I3). Including the latter thus allowed for learning about the potential effects, although results should be cautiously interpreted because of the small group size of non-completers.

Due to the inclusion of treatment completion into the linear mixed model for analysing primary outcomes, it was not possible to conduct sensitivity analyses that compared the total sample to treatment completers-only. Nevertheless, this was facilitated for analyses of the secondary outcomes that utilized a simpler mixed model examining just time as a fixed effect. Treatment completers in this case showed significant main effects of time across all these outcome measures. However, this is not as informative apart from speculation that finishing the full treatment could hopefully lead to the desired changes in internalized shame (specifically, self-esteem as measured by the ISS), unskilful coping (specifically, by externalizing blame towards others) and borderline symptoms of intrusions.

In fact, the differences in explained variance (both marginal and conditional $R^2$) showed that

the larger proportion of the variance was not accounted for by fixed effects, but random effects or individual differences within the sample. For the second study, I thus turn my attention to understanding the qualitative experiences of my participants. Since many adaptations of DBT provide standalone DBT skills training, the next study also aims to investigate how each DBT mode can make a difference within a DBT program. Importantly, I sought to understand more deeply what the impact might be, of making all these adaptations across the four modes (as in the current program). The clients of the program would be the best source of information on this.

Future research can build on this study in a few ways. The first is by examining the differences between specific DBT skills modules. For example, our sample size was too small to allow for sensitivity analyses that investigated the differences between whether participants started off with the mindfulness skills module versus interpersonal effectiveness skills (although majority would have started with the former given that participants were recruited from several closed-format groups). Secondly, the influence of other modes of DBT, such as phone coaching, could not be fully investigated as it was generally underutilized in this program, with the number of telephone calls across the 12-week program being $M = 0.44$, $SD = 1.44$ (Table 3). However, as this is a DBT mode that is understudied, it would be beneficial for more information to be obtained on the dosage effects of not just skills training, but phone coaching use. Finally, studies could examine the differences between having non-DBT and DBT individual therapy sessions, as more treatment settings across the world are being to adopt skills training as an adjunctive intervention rather than full-mode DBT.

## Chapter 4: Study 2 – Practice Makes Progress: Healing Through Dialectical Behaviour Therapy

Building upon the previous study, I sought to understand which parts of the adapted DBT program contributed to the improvements in symptoms that were documented. This is especially important because there are multiple interacting components in DBT (Craig et al., 2008), and many DBT trials do not investigate the impact of individual elements of the therapy. It was proposed that a qualitative design would allow for exploration of several aspects of DBT based on service users' lived experiences.

The existing literature on DBT predominantly employs quantitative methodology, but peer-reviewed qualitative studies have been produced in recent years. The earliest qualitative studies by Perseius et al. (2003) and Cunningham et al. (2004) interviewed women who took part in a DBT program for 12 months or longer ($n$ = 10) and between 6 months to 3 years ($n$ = 14) respectively. Perseius et al. (2003) employed content analysis while Cunningham et al. (2004) used interpretive analysis. Since then, there has been an expansion in DBT researchers' engagement with qualitative research methodologies. Notable studies on DBT adaptations include an inductive thematic analysis that discussed eight service users' evaluation of the therapy and treatment impact (McSherry et al., 2012), a thematic analysis that examined keys barriers to learning and using DBT skills amongst 40 clients (Barnicot et al., 2015) and an interpretative phenomenological analysis of five clients' lived experience of the group (Childs-Fegredo & Fellin, 2018). Most of these studies focused on individuals with BPD (except for the latter, where participants had varied clinical diagnoses), unlike the IMH DBT program that was intended to be transdiagnostic. Although Childs-Fegredo and Fellin (2018) also sampled clients from a 12-week transdiagnostic DBT program, they interviewed only completers and their program comprised two of the four DBT modes i.e., a skills group and individual therapy.

This study addresses a gap in the literature by exploring participants' experiences and views about various aspects of an adapted DBT program that incorporated all four modes of DBT and focuses specifically on their experiences of each mode. In addition, this study involved non-completers of this program, in hopes of giving voice to how such an adaptation may or may not have met clinical needs. No research has examined the experiences of clients who dropped out of DBT, which has demonstrated a weighted mean dropout rate of 28% in a meta-analysis (Dixon & Linardon,

2020), and few quantitative studies on DBT report reasons for attrition from treatment. Findings from the present research will help practitioners consider the implications of modifying certain parts of the therapy for service users.

## Method

This study aims to develop an understanding of the perceptions of individuals undertaking the IMH DBT program, about its process and impact, through qualitatively examining first-hand accounts of these clients. The research question was: what are the aspects of DBT that participants thought influenced the outcomes of their therapy? In line with the focus on the perceptions of participants and the belief that they were the best experts of their own experiences, an interpretivist paradigm guided the study's design.

### *Ethics Statement*

The study protocol was approved on 22/10/2019 by the National Healthcare Group Domain Specific Review Board (DSRB) (DRSB ref: 2019/00845). This qualitative study was supported by the IMH Research Fund (ref: 690-2019).

### *Participants*

Twenty-six participants aged 18 to 39 ($M$ = 26.85, $SD$ = 5.46), who were enrolled in the adapted 12-weekly DBT program at the IMH (henceforth referred to as 'the program'), took part in this study. 19 participants identified as female, five as male and two as gender nonconforming. Not all of them had enrolled into Study 1, although all individuals met the inclusion criteria specified for that study. This is because ethical approval was obtained for Study 1 commenced only in 2022. In this study, interviews were conducted from October 2021 to October 2023. 11 participants were recruited from four closed skills training groups (henceforth referred to as 'groups') delivered from January to April, April to June, September to December 2021 and from January to April 2022. 15 participants were recruited from an open group that ran from July 2022 until July 2023. The final participant had joined existing members for one skills module but completed the remaining modules individually after recruitment of new outpatients for the program slowed, leading to an eventual pause in the delivery of the program between July to August 2023.

More than half ($n$ = 16) had individual DBT-trained therapists who were part of the DBT team, including one person who had a transfer of care from a non-DBT therapist (who was on a leave of absence from work) to a DBT individual therapist for the duration of the group skills training. The remainder saw individual therapists who were not in the DBT team, but it was unknown whether their therapist had some DBT training background or incorporated DBT-interventions during these sessions. Seven participants were students (tertiary or higher education), four were unemployed, two were working on a part-time or freelance basis and 13 were working full-time. 12 had past psychiatric hospitalizations, primarily for suicide attempts or a substance overdose; one person reported hospitalization for symptoms of psychosis. 13 participants reported a family history of psychiatric problems, an additional participant reported that this was undiagnosed but likely for a family member. All but three participants were taking psychiatric medications during the program.

***Procedure***

Participants were recruited via purposive sampling. During orientation sessions conducted as part of routine clinical care for the DBT program, potential participants were provided with an invitation letter by DBT therapists on behalf of the study team. Participants who were referred to the program by a non-DBT individual therapist would come into contact DBT group leaders, also known as skills trainers (see Figure 2 in Chapter 3), who facilitated this process, while participants who were already seeing DBT individual therapists received the letter of invitation from them. Those who consented to be contacted completed a section in the letter to leave their name and contact details, which was then returned to researchers. After consenting participants had completed or dropped out from skills training (and therefore the program), they were contacted for participation in this study.

A first meeting was then arranged either in-person or via teleconferencing, where study information was shared and informed consent procedures were administered. In line with ethical requirements in Singapore, consent was additionally sought from a parent or legal guardian for participants between ages of 18 to 21 years. After which, they each completed a demographic questionnaire before participating in an audio-recorded, individual semi-structured interview that lasted 45 minutes to 1 hour. Often, this was during the same meeting, but a minority arranged for their interview to be conducted on a separate, later date. The majority of participants were interviewed

three months after their completion of the group; the rest were interviewed up to six months afterwards.

There were four different interviewers in total, all of whom were also trained DBT-clinicians. The background of each member of the study team is detailed in Table 11.

**Table 11**

*Researcher Reflexivity*

| | **Researcher 1** | **Researcher 2** | **Researcher 3** | **Researcher 4** | **Researcher 5** | **Researcher 6** |
|---|---|---|---|---|---|---|
| **Professional Role** | Clinical psychologist;<br>DBT team leader | Clinical psychologist; | Clinical psychologist; | Clinical psychologist;<br>Head of Psychology department | Clinical psychologist;<br>Lecturer | Associate psychologist |
| **Role in the Study** | Principal investigator;<br>Conducted 9 interviews;<br>Transcribed interviews;<br>Lead analyst | Conducted 7 interviews;<br>Transcribed interviews;<br>Supported data analysis | Conducted 9 interviews;<br>Transcribed interviews; | Conducted 1 interview | PhD advisor | Transcribed interviews |
| **Potential Influence on Interview Conduct or Analysis** | Delivering all four DBT modes;<br>Familiar with extant DBT literature | Delivering all four DBT modes | Delivering all four DBT modes | Delivering individual DBT;<br>Previous member of the DBT team | Working relationship with (1);<br>Past working relationship with (2) | Supervised in study research procedures by (1) |

Field notes were written to document observations during interviews (Morrow, 2005). Verbatim transcriptions were made of all audio recordings, following specific speech-to-text transcription guidelines outlined by Braun and Clarke (2012). If names of other clients were mentioned, these were redacted and indicated by '[name of groupmate]'. Direct mentions of any therapists' names were not modified.

The textual data was then analysed to generate themes, following which 20% of the participants were randomly selected and contacted for a member check via email. Four out of six participants responded to these emails and completed an online form to share their opinions on the trustworthiness of these findings (Birt et al., 2016). Of these four, three were treatment completers and one had dropped out of the program. Two had undergone a closed group and two an open group. All but one experienced online group skills training, the exception attended one session in-person but

transitioned online due to surges in COVID-19 cases). Their feedback was compiled and analysed together with the preliminary findings to draw final conclusions.

### *Ethical Considerations*

As interviewers were practicing clinicians delivering DBT, precautions were taken to ensure that they did not interview their own individual clients (i.e., to balance insider and outsider roles, which was addressed in ethical approval applications). Insider research is conducted within settings with which the researcher has a direct connection (Mercer, 2007) or part of the group being studied (Adler & Adler, 1994). To overcome ethical challenges (e.g., Costley et al., 2010), care was taken during participant briefings to explain reasons for their inclusion, clarify benefits and possible risks, with emphasis that declining to participate will not be interpreted negatively and that they can withdraw consent or specific data at any stage of the study without providing reasons. The researchers' positions and methods of investigation were explicitly presented at the outset, for participants to ascertain potential effects in the research-participant relationship.

### *Materials*

The demographic questionnaire administered is found in Appendix J. An interview guide (see Appendix K) was developed and focused on experiences of undertaking all four modified-DBT modes, difficulties that arose during the program, and treatment impact such as learning and application of DBT skills. It was discussed amongst interviewers and piloted with three other DBT therapists (external to the study team) from March to June 2021, who provided feedback on the phrasing and clarity of key questions and prompts. A member check form (see Appendix L) was also developed for participants to comment on each theme, such as the ways in which they agreed or disagreed with it, whether the theme fit with their experience and how clear they found the theme and its description.

### *Analysis*

Reflexive thematic analysis (Braun & Clarke, 2019) was employed after the study team agreed upon an epistemological standpoint of seeking to understand how clients made sense of the DBT program (Braun & Clarke, 2019). This approach also allowed researchers to keep in mind the broader context in which the program is situated, which involved the need for ongoing modifications

(e.g., transitions from in-person to online, from closed- to open-format groups, and even changes to the clinical deployment or duties of staff delivering the program) over the course of an unprecedented COVID-19 pandemic.

There are six phases outlined in reflexive thematic analysis (Braun & Clarke, 2012; 2013; 2014; 2021), and it should be noted that the process is iterative and non-linear, which meant that the lead analyst and primary advisor (researcher 1 and 5 respectively as per Table 11; from henceforth referred to as 'analyst' and 'advisor') moved back and forth as required. The advisor provided critical insights and reviewed the coding and themes to enhance the rigor of the findings. The following steps were taken as part of the qualitative data analysis.

**Phase One: Familiarization with the Data.** As expected of most qualitative research, this first stage involved immersion in the data. Each transcribed interview was entered into a separate sheet on a single file in Microsoft Excel. This involved manual transcribing of the data (the analyst transcribed one-fifth of interviews; in general, each interviewer made best efforts to transcribe the interviews they had conducted), reading and re-reading the transcripts together with any available field notes. In occasional cases, the interviewer was engaged in further discussion to clarify any information that was unclear to the reader. A table was created in a new Excel sheet, where summaries of the emerging ideas and main points for each interview were written. Each row in the table was labelled by participant number.

**Phase Two: Generating Initial Codes.** To begin organizing the dataset, coding was conducted by creating concise, narrow labels (i.e., initial codes, entered into a new column on every interview in the Excel file) to describe the properties of each chunk of text. This was done with the research question in mind. Questions, prompts and clarifications by interviewers were taken into account, to base the researcher's interpretations of patterns of meaning on contextual information. The analyst assumed main responsibilities for code creation, and had multiple meetings with the primary advisor who had the most experience with reflexive thematic analysis. They jointly examined the first nine transcripts to sense-check ideas and clarify initial codes. Between meetings, the advisor separately reviewed the coding of ten other transcripts. In this inductive manner, many of the codes were revised (up to three or four iterations). Where it was apparent that a participant was in individual

therapy with the analyst, a third study member (one of the interviewers i.e., researcher 2; see Table 11) was engaged to also review the codes. She verified that they were objective (e.g., not coloured by clinical knowledge of the case) and generated only from information in the interview itself. These validation strategies (Creswell, 2014) ensured that codes were as data-driven as possible. In total, 1736 codes were developed across 26 interviews.

**Phase Three: Generating Initial Themes.** This phase was previously referred to as 'searching for themes', and was recently rephrased by Braun & Clarke (2019) to highlight the researcher's active role in knowledge production; that is, themes are not waiting passively in the dataset to be discovered. All the codes were copied into a new Excel file, and 15 duplicate codes were removed during this process. Codes were sorted into initial themes in this file by creating a new sheet and reorganizing all of the codes based on their connections to each other. This process frequently necessitated that the analyst returned to the previous phases to revise the meaning and phrasing of multiple codes, in consultation with the primary advisor. Microsoft Excel enabled codes to be visually represented, for the analyst to map out conceptual similarities between codes and preliminary clusters of key ideas. 14 codes were removed after examining interviews where prompts outside of the interview guide were provided. These occurred when interviewers elicited participants' reports on memory or recall of specific DBT skills (e.g., ' Does it ring a bell that you did things like [name of skill]?' or 'Does it sound familiar to you?' versus inviting participants to comment on skills they found meaningful for themselves). After five rounds of discussion with the primary advisor and reorganizing clusters of meaning (each new draft was created in a new sheet within the Excel file), more than ten initial themes were generated.

**Phase Four: Reviewing Potential Themes.** In this phase, an iterative review of potential themes was performed at two levels (Braun & Clark, 2006), firstly considering their relationship to coded data from the transcripts and secondly considering the complete dataset and its meaning in entirety. Codes thus continued to be reorganized and even revised (collapsed or rephrased) as themes were refined. In our case, it was essential to narrow down the number of themes as the earliest drafts contained overly narrow initial themes, some of which were eventually designated as subthemes. After revising four versions of the list of themes and their constituent codes, 39 codes were classified

under a ‘Miscellaneous’ section as these did not fit well into the candidate themes. These mainly pertained to printed materials (e.g., handouts) and collection of data / feedback (some of these were about the research program [study 1] rather than the clinical program). From the remaining codes, the analyst generated seven distinct themes in discussion with the primary advisor.

**Phase Five: Defining and Naming Themes.** During this stage, a comprehensive examination of the thematic framework was conducted. Each main theme and corresponding subtheme(s) was to be expressed in a ‘coherent and internally consistent account’ (Braun & Clarke, 2006, p. 22), within the context of the research question and dataset. The analyst and advisor scrutinized the identified themes and the data, co-constructing a detailed analysis of each theme by working on Microsoft Word over the course of four different drafts.

**Phase Six: Producing the Report.** Although the documentation of this research was integrated throughout the entire analytical process, this phase involved finalizing a full thematic map and developing a cohesive account. The reflexive thematic analysis was not fully completed then written up; rather, Braun & Clarke (2013) assert that the analysis is developed into its final form through this process of writing. The analyst and advisor discussed re-ordering the themes in order to present the narrative that best conveyed a meaningful story from the data, yielding a second draft.

Additional data from member checks were then incorporated into a third draft. In the member check process, one member opined that theme one, initially titled ‘starting and ending’, was less clear and another disagreed with the theme ‘reciprocity between group and individual therapy’ and found it slightly vague. Apart from this, members agreed or strongly agreed with all themes.

**Results**

The seven salient themes generated from the six phases of analysis are delineated in Table 12. Each theme discusses an aspect of the DBT program that was significant to the participants’ experiences. They are explained in turn and illustrated by verbatim excerpts selected from the interviews.

**Table 12**

*Summary of Themes and Subthemes*

| Themes | Subthemes |
|---|---|
| Need for clarity in commitments and course of therapy | Trust in individual therapist's recommendation<br>Readiness depended on timing of entry and personal availability<br>Barriers to entry include low public awareness and low accessibility<br>Providing clarity and setting expectations needful in orientation<br>Modification to therapy plans after ending |
| Skills group is useful but busy | Sense of the skills group being crammed or rushed<br>Interest in obtaining more DBT, possibly because 12 weeks are insufficient<br>Homework useful yet seen as a chore |
| Navigating a shared space in group was complex but beneficial | View of self in relation to the group<br>Shared learning experience instilled hope<br>A shared vulnerability and empathetic exchanges increased connection<br>Largely intact bonds despite difficult interpersonal interactions<br>Impact of the open format and attrition rate on sense of belonging<br>Missed opportunities for deepening connections<br>Alliance with therapists as part of group processes |
| Reciprocity between group and individual therapy | Positive experience and gains beyond individual therapy<br>Experiences of DBT in relation to other therapies<br>Individual therapy began to focus more on skills<br>Individual therapy held additive value outside reinforcing skills<br>Focusing on one DBT mode at the expense of another |
| Phone coaching was underutilized | Multitude of reasons for not using, with crisis being the biggest determinant of use<br>Costs of adapting this mode<br>Having phone coaching available was reassuring regardless of usage level |
| Skills are valuable and require continuity in practice | Gained a repertoire of useful skills<br>Relevance of skills increased their value<br>Consistency and continuity needed in skills practice<br>Challenges in applying skills, especially during crises |
| Changes in skilfulness | Learning and application of skills to personal situations<br>Variable impact of skills on relationships and power of one's environment<br>Emotion regulation evident in increased self-reflection and decreased reactivity<br>Emotional avoidance related to low improvements in regulation |

### *Theme One: Need for Clarity in Commitments and Course of Therapy*

Starting on the DBT program depended on factors such as having trust in the referring therapist and personal readiness. These facilitators, together with barriers to entry, are explored in the subthemes below. Several participants emphasized that gaining clarity (e.g., in expectations of what was required to start DBT or otherwise access the program) was a needful part of the orientation process. Endings and follow-up were influenced by whether someone completed or did not complete the program, and these usually involved modifications to individual therapy plans. It appeared helpful

to have clarity on the expected course of the therapy (i.e., expectations of what would occur after ending the program).

**Subtheme One: Trust in Individual Therapist's Recommendation.** Trust in the individual therapist, who served as the referrer to the DBT program, was a driving reason for many participants who chose to enroll. Almost half of the sample spoke about having developed trust in their individual therapist (whether DBT- or non-DBT) before following their clinical recommendation to embark on a skills training group. For others, their decision to join related more to having some prior knowledge of DBT from different sources (e.g., word of mouth, online research, studies in psychology courses at school).

**Subtheme Two: Readiness Depended on Timing of Entry and Personal Availability.** Time spent in individual therapy prior to starting on this DBT program ranged from 5 or 6 sessions to several years. At the same time, multiple people reported that it was their first experience of being in a therapy group. Many participants opined that the timing of their entry was ideal, with some having attempted a different therapy before. Those who did so opined that they would not have been ready earlier or that they needed to become more open to mental health interventions. Someone who received DBT as her first therapy found that starting early was helpful in equipping herself with needful skills.

As the program required a 12-week commitment, personal availability of participants was a significant consideration for starting. Doing the program alongside full-time work or studies was described as overwhelming, with participants who secured flexible work arrangements (e.g., time-off, working from home) expressing gratitude or relief. In a similar vein, participants who had no work or life commitments (e.g., caregiving) reported that they could be very invested in the program and were even open to a longer duration of the treatment. The narratives of multiple participants indicated motivation to do DBT, as they shared about having prioritized therapy over a new job; they took time off work to attend therapy or completed therapy despite unexpected life transitions like enrolling into school.

**Subtheme Three: Barriers to Entry Include Low Public Awareness and Low Accessibility.** Participants opined that low public awareness of DBT was a barrier to accessing the

treatment more quickly, with someone having obtained a transfer from another public hospital because DBT skills training was not yet available elsewhere in public mental healthcare. For her, it was comforting to learn that DBT was offered in Singapore:

> Participant: Because I did have to kind of like Google about it and learn that oh you know, IMH offers DBT, yeah. But it's nice to know that at least IMH has DBT because compared to other hospitals they don't really offer this treatment. … um, I think it's because of my specific condition, so then I was looking, looking up you know what treatments would help and then how, like therapy would help. Because I was looking up about the therapy, then I saw that they said it's like you can also try out DBT. So then I thought, like I started searching in Singapore where can we find DBT, then that's how I found out about IMH having DBT.

According to participants, waiting time for first visits to an individual therapist was long during COVID-19 while enrolment into the group was a faster process.

**Subtheme Four: Providing Clarity and Setting Expectations Needful in Orientation.** Providing clarity and setting expectations were identified as a needful part of the orientation process. A third of the participants shared that the intake or orientation process was smooth, helpful, comfortable, reassuring, and clear, and only two participants did not feel fully oriented. A few participants left the orientation session(s) with expectations of a program that would be highly structured. and the majority opined that such structure was helpful or comforting, as illustrated by the following quote:

> Participant: Like- like- I come knowing that okay, I am going to learning this today, and then I'm going to learn that next week- which I feel is very comforting for me? So yeah… I liked it a lot, because I feel like, I know what I can look forward to…

Narratives also indicated room for improvement in conducting orientation sessions. These included more clarity around inclusion/exclusion criteria and ensuring orientations were conducted by group therapists.

**Subtheme Five: Modification to Therapy Plans After Ending.** Endings and follow-up after the DBT program were examined, which were partially influenced by whether participants completed the program or not. Two participants in the sample had dropped out after missing three group sessions

(a modified version of the 4-miss rule in standard DBT); they specified that it was due to external life factors unrelated to therapy. A few participants reported emotional difficulties with endings and described feeling sadness, fear, emptiness, or hopelessness at the ending of the program. These feelings appeared amplified for the minority who were experiencing transitions outside of the program i.e., a person who was anticipating another ending (transition from child to adult psychiatric services) and for another who needed to transfer back to working with a non-DBT individual therapist.

In terms of follow-up, it appeared common that clients engaged in a therapy review with their individual therapists after program completion, to determine the next direction in treatment. Where these reviews involved assessing progress in therapy, there were mixed reports related to fully meeting therapy goals, feeling more confident of ability to meet goals, becoming more realistic about goals, and either not meeting goals or having no goals. Some participants were working towards ending individual therapy or reducing its frequency. There were a minority who did not have or were still seeking clarity on next steps following the group. This was indicated by not having the opportunity for a therapy review or other discussion on changes to their therapy plans, especially if they dropped out from therapy (individual and group) altogether.

### *Theme Two: Skills Group is Useful but Busy*

Participants experienced the adapted skills group as packed but helpful. This included the skills teaching and homework, and participants reported having much to do. There was an interest in obtaining more DBT, either by extending the program or holding a 'part two', possibly because 12 weeks felt insufficient.

**Subtheme One: Sense of the Skills Group Being Crammed or Rushed.** Many participants opined that the content of the skills group was crammed or packed, with a number of them adding that the program length of 12 weeks was insufficient for understanding and practicing all the skills taught. Only a minority found that content was well-paced. As a result, some parts of skills training felt rushed or lacking in depth, as illustrated by the following quote:

> Participant: The other ones, I think the examples given of how to, er, for distress tolerance, I think it was quite general. So um, there wasn't much depth to it. That- that's just what I felt

that um, it just touches on, ok, you know, can wash your face with cold water or whatever. It's- Yes. I know it's a simple thing and simple things help, but er, it would have been better also if we had go- gone deeper into the subject. Yup. They- they gave a lot suggestions but not much of the theory.

Interviewer: Mm mm. So for that example right, what would be the theory? So so you wanted to learn the theory behind-

Participant: Yes, a little bit more, rather than giving all the suggestions, and um, which are quite general. And then you know, it's okay you do this, but what exactly is um, distress tolerance and, and that kind. How- because I think m- most people are also um, confused with the difference in distress tolerance and emotional regulation.

**Subtheme Two: Interest in Obtaining more DBT, Possibly because 12 Weeks are Insufficient.** Many participants suggested for an extension to the program length, either by adding to the number of sessions or increasing the duration of each session. This included those who had initially not wanted to join a group but changed their mind over the course of therapy and wished it were longer. The main reasons for increasing program length included needing more time for learning, more support from peers, or follow-up to maintain motivation. Participants reported that time in group sessions went to opening mindfulness exercises, addressing questions from members or homework reviews. Except for opening mindfulness (there were mixed opinions about its helpfulness or relevance), they felt that retaining these components was needful. As such, booster sessions or a refresher course were suggested. Others expressed interest in retaking or repeating the program and enquired if there would be a second program for graduates.

There were three people who found that the current session length was too long for sustaining attention and suggested for shorter (e.g., 1 to 1.5 hours) but more frequent or an increased number of group sessions. Five people found the program length to be adequate and would not have wanted an extension because of other life commitments or because it would be too emotionally intensive and tiring.

**Subtheme Three: Homework Useful Yet Seen as a Chore.** While homework and feedback on homework were predominantly seen to be useful, these were also equated to chores or experienced

as tiresome. A subgroup of participants felt compelled to complete homework to show up to the next group session. They found that this helped them to get more out of the program, while others struggled to keep up with the number of skills being taught or rushed through their homework. Only a couple of participants found that the amount of homework was manageable. Even then, someone admitted that it was difficult adhering to scheduled tasks during certain weeks that were particularly busy outside of therapy, while another reported needing to prioritize survival during crisis. While there was feedback that the diary card was confusing or lengthy to complete because it contained too many items, it was cited as useful for self-reflection; Theme Seven will elaborate on this further.

***Theme Three: Navigating a Shared Space in Group was Complex but Beneficial***

Participants found themselves observing many interpersonal processes in the group (inclusive of both therapists and peers), which are discussed below. The group consisted of a space that involved joint learning, a sense of hope, exchange of empathy, vulnerability in sharing and connection despite some tense interactions. Moving from a closed to an open group format where members and skills trainers were rotated decreased bonding. Regardless, the majority wanted more space for deeper interpersonal connections, with some expressing sadness that this was a missed opportunity because of the online delivery of skills training.

**Subtheme One: View of Self in Relation to the Group.** There were different ways that individuals viewed themselves in relation to the DBT group – prioritizing group processes over personal needs, over-focusing on groupmates' progress, identifying or overidentifying with others (e.g. having similar life experiences or emotional experiences), or even seeing themselves as better than their groupmates (e.g., due to having prior knowledge about DBT through self-studying). Interestingly, one person saw the group as giving her permission to be sick and felt unmotivated to recover throughout the program.

People reflected on witnessing and being mindful of the group dynamic as well as their own contribution to it. Almost half of the participants spoke about their own social-related fears and anxiety or observing anxious behaviours in others:

> Participant: Mm… well like it's the first time in the group, so at first it was really awkward because like, it's like sort of hard to talk about ourselves and our issues with other people.

> Even if you know like at the back of your mind you're thinking everybody's as messed up as you, so it's not so bad. But I- it was kind of hard going at first 'cause everyone was really shy and I still am sort of like, shy. …

The online modality of the skills group appeared to reduce the intensity of interpersonal interactions, making it more tolerable for highly anxious individuals, as another participant reflected:

> Participant: … because we were all online, we had our own resources and it was less taxing for like socially awkward people in like a social situation. So it's less stressful.

**Subtheme Two: Shared Learning Experience Instilled Hope.** The group was important in facilitating a shared learning experience and instilling a sense of hope in participants. Participants referred to the group as both a practice ground and an avenue for joint problem-solving, which made skills training less overwhelming than individual therapy and made change feel achievable. This appeared especially needful for those who were discouraged with mental health treatment, having arrived at DBT after exhausting other therapy options. It also normalized challenges in practicing skills and asking for help with a skill:

> Participant: When we actually learn the skills and everything right, you know the modules as they evolve, um they get increasingly more difficult, so, like- sometimes like you feel like 'oh actually I don't really know how to practice this skill', but, then like I don't know how to say I don't know how to use it, but others will be like, 'eh actually like I have great difficulty using this, like uh why is that so?', then we will evaluate together, so it's kind of like *um* learning and breaking down the steps together, that makes me feel like- okay like this is actually tangible and achievable… if not like on a grand scheme of things, I will feel like- like I'll feel so overwhelmed, I have so many things to do and learn.

**Subtheme Three: A Shared Vulnerability and Empathetic Exchanges Increased Connection.** A shared vulnerability was found to be important in building bonds. Being able to relate to others' experiences, be it peers or therapists, was what added value. Participants found therapist self-disclosure surprising, serving to increase connection and empathy within the group. This sense of connection then decreased feelings of being alone or alienated. One person highlighted that the strong group cohesion led to the perception of not having enough time together, as illustrated by the quote

below:

> Participant: Um, I think overall it's very positive, uh but I think because um, I got along quite well with my groupmates and er, *[names of group therapists]*, they were all um, very attentive and- and very good … um but I guess the negative thing is when you have a group that get along very well, er it, it feels like *there's not enough time* [emphasis added].

Giving and receiving empathy in the group was also important, and many participants recounted how groupmates responded supportively to self-disclosures, were sensitive to others' emotions or provided cheerleading. Attending to a range of emotions were evident in their narratives. This included anxiety (e.g., a more vocal groupmate helping someone to open up), happiness (e.g., for a groupmate who graduated in an earlier module), sadness (e.g., for a groupmate who dropped out due to personal struggles), etc. Participants spoke about empathizing with others during difficult interactions. They witnessed a new member's entrance into the open group, or others dysregulating in the session, behaving aggressively towards others, being stopped by a group leader, dropping out, and so on. One person deeply empathized with her groupmate:

> Interviewer: And actually when you witnessed this, right, someone else in the group being more emotional, how does that impact you?
>
> Participant: *sucks in air* Uh-
>
> Interviewer: At that moment.
>
> Participant: To be honest I feel like you know, that can be me? Uh so I tried to be understanding, I'm sure that something have happened? Um- um because usually, us human being[s] you know, we try to control ourself, but sometimes when you just can't take it anymore, it just like- you know it just like burst and, and then sometimes you don't even remember what happen- so I- I was- you know I- I kinda feel sorry? Uh I mean like I would- I really wish you know somebody is there for her?

**Subtheme Four: Largely Intact Bonds Despite Difficult Interpersonal Interactions.** At times, there were difficult or tense interactions in the group. Despite the predominance of descriptions of everyone as nice and the group as supportive, one participant pointed out that another groupmate

was more forceful than others; still other participants offered multiple examples of uncomfortable interactions in the groups. These included witnessing a groupmate engaging in any of the following behaviours: talk over others, showing an angry reaction, making critical comments, interrupting with multiple questions, or witnessing a negative exchange. These appeared to stem from experiences of anger or anxiety, and ranged from having the group discussion being interrupted by someone who posed multiple questions, hearing the use of vulgarities, witnessing an angry groupmate telling off others or a negative exchange where critical comments were made, etc. Where there were moments of tension, some members observed that their group leaders needed to remain emotionally regulated to intervene.

Participant: Yeah so I think *[name of group therapist 1]* also- um saw that *[name of group therapist 2]* reaction you know, so she- she takes over, so I think- and then um- *[name of group therapist 1]* she you know she- she- try to make the participant understand that it's okay to feel stress, you know take a step back? Um- yeah because it was very scary you know to see somebody like blow off like that…

Despite these occurrences, people in certain groups still felt bonded. This was especially so in a large group of relatively younger members who started off the open group together. Over time, as membership was rotated in the open group, narratives indicated that the sense of bondedness was not as high. In the closed format groups, participants shared about having formed friendships, as well as keeping in contact in between sessions or even after the group ended.

**Subtheme Five: Impact of the Open Format and Attrition Rate on Sense of Belonging.** One third of participants who were part of open groups described being unaffected by the change in membership, while another third of participants commented on feeling anxious, distracted, or otherwise less comfortable in an open versus closed group format. They mainly attributed this to a need for familiarity:

Interviewer: Mm I see, okay, so you would prefer- as in your group members not to change?

Participant: Mmm, yeah. 'Cause got a sense of familiarity.

Interviewer: Ah okay, how does that help you better?

Participant: Mmm, can mm-mm- uh- more open to talk more *bah…* then- yeah *lor*, cause that time during halfway got a new lady come in *mah*- then actually a bit not used to it also *lah* cause her- her- her- her- her- her- her - her aura is very direct one, feel a bit scared. *laughs*

Interviewer: Okay, do you think if- then how did that hinder you in group?

Participant: Mmm, maybe talk less *lor*. In case later *kena* [Malay word to mean 'incurred'] judged, then she say something, mm.

Interviewer: I see, okay, so if uh- if the group was the same, if she had joined from the start actually-

Participant: Then at least oh, uh, I'll get used to it already.

Many participants witnessed dropouts and reported a variety of responses, ranging from being unaffected to worry, sadness, curiosity or concern and being tempted to follow in their footsteps (e.g., after hearing of a peer leaving for a similar reason). One person recalled that her group had dropouts due to transitions from an in-person to online format at the start of the COVID-19 pandemic, which demoralized the remaining group members. These participants reflected on the importance of the group's commitment and not just the individual's, which was corroborated by someone else who was asked about her experience of groupmates missing sessions:

Participant: Uh. Like, it just like maybe like it wasn't fair. You know? I- I fought so hard to get into the group and then, and they didn't [attend the group sessions], I mean, yeah, but yeah if- if, there- there would be their individual issues *lah* uh, sorry this maybe sound a bit mean uh, yeah. Yeah, uh… like I worked so hard to get into the group and then the people who got into the group were not as- yeah, as… [committed] yeah.

**Subtheme Six: Missed Opportunities for Deepening Connections.** Most participants verbalized wanting more time and space for deeper connections with others, with some lamenting over missed opportunities due to the online format or the didactic nature of skills training. While many appreciated the convenience of an online group and found the sessions helpful, they thought it easier to socialize or to interact in-person. An exception were two people who found that online

groups were less socially 'taxing' and that interpersonal processes were easier to navigate online than offline, especially when feeling emotionally dysregulated. Several people added that attending from their home environment was unconducive or distracting due to various reasons, such as having family members in the vicinity, multitasking, being on a bed or facing technical difficulties (e.g., bad audio).

**Subtheme Seven: Alliance with Therapists as Part of Group Processes.** Group therapists were described by more than ten different voices with adjectives such as being understanding, patient, compassionate, warm, sincere, competent, empathetic, safe, sensitive, inviting, relatable or helping members to feel comfortable in other ways. A couple of participants did report difficulties in connecting with the group therapists, including one participant who expressed strong anger towards the group leaders, perceiving the group to be out of control.

Regarding group leadership or facilitation, participants appreciated when there was clarity in the teaching of skills and the roles of group leaders. While some found that the group leaders' co-facilitation complemented one another, a few other participants pointed out that changes in group leadership and different facilitation styles in the open group required some adjustment and wished for more consistency. For example, one group leader chose to use presentation slides, which led to the following expressions of disappointment or frustration:

> Participant: Um, I think it's just that at one point I felt like it was a bit draggy. In the sense where one of the facilitators I think I felt like maybe they were just kind of running through the different uh, things that they wanted to teach us, so it didn't feel like it was as interactive so they kind of just read the skills, what, what this skill is, what it's about but didn't really interact with us in a sense like asking, you know, how this skills would be relative to our own life. So I felt like it's also in, in the… I guess it's also in the setting of a class like if the teacher you know, just talks and doesn't really engage with the class then we don't really feel as, it doe- it doesn't help us as much because then we just, we're just kind of reading, listening, but we cannot really learn how to apply it.

***Theme Four: Reciprocity Between Group and Individual Therapy***

The design of the adapted program meant that attention was directed towards the group therapy, possibly over the other modes of DBT. Nevertheless, there was a reciprocal interaction

between the group and individual therapy, although this was more pronounced for participants in individual DBT. In general, people found the skills group to be a positive experience that helped with making gains beyond individual therapy alone. Some found DBT to be structured differently from other types of therapies, and many found that their individual therapy (regardless of it being DBT or non-DBT) began to focus more on skills. Individual therapists were highly active not just to reinforce skills, but to solve any problems to ensure that people kept up with the group, made sense of emotional situations or difficult life events, etc.

**Subtheme One: Positive Experience and Gains Beyond Individual Therapy.** A majority spoke positively about the program (e.g., describing it as comprehensive or enjoyable) and said that they would recommend it to others, except for one person who held a very negative impression and thought there was much room for improvement. Certain individuals disclosed that it exceeded their expectations as they were initially dismissive, apprehensive, or anxious about joining. For example, when asked about the impact of the skills group on her life, one participant reflected:

> Participant: … I feel like I had the privilege to garner access, to all these resources and skills? So I wish that others will have the same as well *lah*, because back then I was like, oh okay just let me die you know, that kind of thing and then like- *chuckles* like I didn't know, there's such resources available and help available, and it really helps you. So, I think it's really really life-changing? And it's really important.

Overall, there was consensus that group therapy did not disrupt or hinder individual therapy, with many voices adding that both were complementary or otherwise helpful together. According to many participants, the group and the skills taught were beyond what could have been achieved in individual therapy alone and they were grateful for it. For some this was described as the group being 'an anchor' in their weekly routine, whilst others appreciated the dosage of therapy while on the program.

**Subtheme Two: Experiences of DBT in Relation to Other Therapies.** With respect to individual therapy arrangements, participants underwent DBT or non-DBT therapies, or were offered a choice. Many participants had previous experiences of non-DBT therapies, such as schema therapy, cognitive behavioural therapy and counselling approaches that were supportive in nature. Some of

them compared the program with their past therapies. They elaborated on how they used past counselling to ventilate or to access a listening ear, with someone opining that schema therapy did not directly address a skills deficit. Others commented on how DBT was structured differently from other therapies, describing it as more skills-based, involving thinking (i.e., analysis and generating solutions), practice and 'effectiveness'; the latter being a DBT term used by a participant who found DBT to be 'worlds' apart' from previous counselling. One person added that it is more comprehensive and detailed than other therapeutic approaches.

**Subtheme Three: Individual Therapy Began to Focus More on Skills.** Many participants found that their individual therapy became more organized around skills use upon starting the program, while a couple of participants shared that their non-DBT individual therapist had even taught some skills beforehand. Participants reported a related reduction in ventilating and a shift to increased thoughtfulness in individual therapy, evident in staying on topic and intentional application of skills. The skills became a common language between therapists and clients (regardless of whether someone was receiving DBT or non-DBT individual therapy) and a handful of participants likened the group and individual therapy to a lecture and tutorial class respectively, in reference to the local education system.

When asked how the skills group changed her experience in individual therapy, a client who received individual DBT said:

> Participant: … I guess it's sort of made it a bit more like uh, for lack of a better term, like structured? Like before we were mostly just talking about like events in my life or like other possible stuff that cause me stress, and uh… like, like you know sort of just like talking about stuff *lah*. But after- after group then- after group then we sort of have like more of a plan like, 'okay during this session we are going to like practice this skill, talk about this skill' or have this sort of like consolidation of what we have learned so far, that kind of thing.

Across more than half the sample, participants recounted how individual therapy served to reinforce skills by going more in-depth into group content or homework, although this was disproportionately reported by those with DBT individual therapists. Ten participants shared about how their DBT individual therapists were highly active in problem-solving to ensure that they kept up

with learning the skills, mostly by addressing homework non-completion and missing therapy (known in DBT as 'therapy-interfering behaviours'). Many of these therapists caught clients up on any missed group sessions, although it was unclear whether this was part of contingency management plans between the therapists and/or their clients. Participants with individual DBT found that it was used to provide personalized skills coaching, although one client with a non-DBT therapist did report that individual therapy addressed specific problems (dysregulated sleep). Two participants mentioned that their non-DBT individual therapist reviewed homework during therapy sessions, with one expressing unhappiness about the change:

> Participant: So I guess during that 12 weeks, we really, solely did things that I wrote down for homework and things on the diary card. Maybe that's why I got frustrated in January because all we were doing is just referring back to the worksheet, the worksheet rather than actually you know, talking about things that to me it's important but not on the worksheet. So, that's maybe why I just decided to stop doing it. Cause if there's no worksheet she cannot refer to anything.

**Subtheme Four: Individual Therapy Held Additive Value Outside Reinforcing Skills.** Regardless of whether someone had DBT or non-individual therapy, individual therapy allowed for processing of emotions and being able to return to the group more confident or aware. From participants' accounts, each therapist had their own style of delivering treatment, thus providing a non-homogenous experience of dialectical strategies in individual therapy. For instance, one individual appreciated how her therapist was flexible when it came to focusing on skills, while another faced difficulties in requesting for less focus on skills and more space to ventilate about a difficult life event.

**Subtheme Five: Focusing on One DBT Mode at the Expense of Another.** There were a small number of individuals who were primarily focused on one treatment mode. The majority of them primarily focused on the group therapy, reporting a decreased need for individual therapy or even reduced motivation and rapport with their individual therapist. Different to this, one person valued individual DBT to the extent of finding other DBT modes negligible; this was a client who had temporarily transferred from a non-DBT to a DBT therapist for the duration of the program.

It is possible that the program's heavy emphasis on skills training also meant that participants' focus was directed towards the group over the other modes. Whilst participants had a strong sense of individual therapists and group facilitators, experiences of the therapist consultation team were varied, with each person providing a unique insight. In general, those who appreciated the team found it helpful to have different styles of relating with multiple therapists and receiving inputs from them; initial skepticism was allayed, and one participant described a 'feeling of a village'. Others were neutral about or did not sense the presence of a therapist team. They found that there was limited access to each therapist or had an unclear purpose about this mode of DBT.

### *Theme Five: Phone Coaching was Underutilized*

The reasons for using or not using phone coaching are outlined below, although it was notable that more participants reported the latter. Their responses indicated that this was an effect of modifications made to this mode of DBT. Despite these reported reasons, having phone coaching available was found to be reassuring whether it was used or not.

**Subtheme One: Multitude of Reasons for Not Using, with Crisis Being the Biggest Determinant of Use.** Participants provided various reasons for not using phone coaching, such as having needs already met through the other therapy modes, anxiety on calls or dislike for phone calls, not having the option to receive coaching purely via texting, losing the mobile number provided, forgetting about the service, and being too busy. Others further added that they would not answer calls if they felt emotional or that they tended to close off during crises.

It was found that crisis was one of the biggest determinants for using phone coaching. Only one person reported calling in during a non-crisis situation, and many others did not use phone coaching as they did not experience crises or were unclear when to call in. A couple of participants commented that they would have wanted to use this DBT mode during a recent crisis, but this occurred only after they had already graduated from the program and no longer had access to it. A few others spoke about their negative experiences with the local crisis hotlines, which were compared with phone coaching (a participant was deterred from phone coaching after the crisis hotline, another found phone coaching to be more helpful after experiencing both, etc.). Apart from not being in

crises, participants spoke about not using phone coaching because of coping or wanting to cope independently.

The waiting time for a return call after making the initial request was the second largest deterrent for phone coaching. The expectation of a time lag could be from anticipation of non-responsiveness coupled with a fear of being let down, personal experience, or hearing about a groupmate's experience of waiting. Some participants expected an immediate response, possibly because of the impression that it would be a source of support in crises; one person suggested for the service to be provided via WhatsApp as she thought that receiving a typed or written reply would be faster.

**Subtheme Two: Costs of Adapting This Mode.** Having familiarity with the therapist providing phone coaching was seen as important by participants. One caller opined that phone coaching may not feel very directed if the therapist on-call was unfamiliar with her case, and two others shared about a preference to speak with friends or family, especially if unsure about who would be on the other end of the line. In terms of understanding how to use this mode of DBT, there was a sense that some clients perceived phone coaching as extra therapy or may have overused it to get a therapy 'fix'. Nevertheless, there was adherence to guidelines for phone coaching – for example, one person reported following the 24-hour rule (not using phone coaching for a 24-hour period after self-harm), and another person detailed how her attempt to access phone coaching outside of the rules was not reinforced by the DBT therapist team.

**Subtheme Three: Having Phone Coaching Available was Reassuring Regardless of Usage Level.** Most of those who used phone coaching found it helpful for skills use and having questions answered; one participant reported using it to gain connection with the group therapist. There was other feedback from four individuals on having little memory of the phone coaching session, or the call being too short, or it being limited in solving a persistent problem. Among those who did not use phone coaching, there was talk about how knowing that it was available was reassuring.

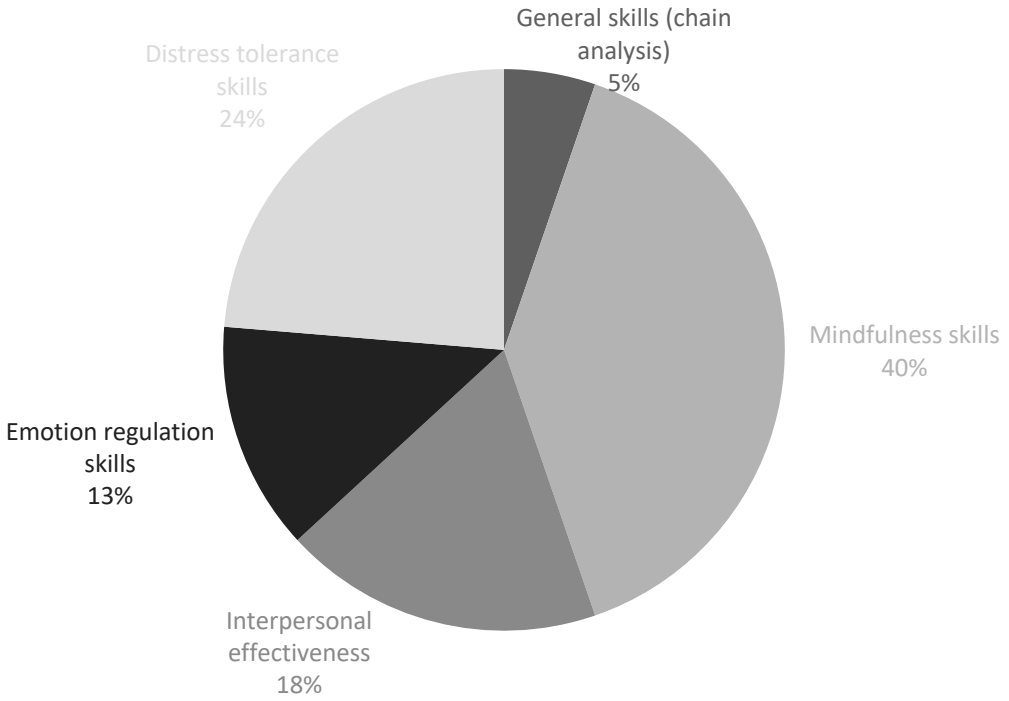
***Theme Six: Skills are Valuable and Require Continuity in Practice***

The main benefit from completing the program was gaining a repertoire of useful skills. The skills were valuable especially when relevant or applicable to the personal context but required continuity in practice and could be challenging to use in a crisis.

**Subtheme One: Gained a Repertoire of Useful Skills.** Almost all participants who were interviewed agreed that DBT skills were useful or beneficial, apart from an individual who reported not being able to gauge the impact of the skills group and another who stated that the skills only occasionally helped. The majority of them were able to identify one or more skills that were most important to them, as presented in Figure 4 below.

**Figure 4**

*Participants' Reports of their Most Useful Skill(s)*




*Note.* Specific mindfulness skills reported were non-judgment, states of mind and wise mind; specific interpersonal effectiveness skills reported were DEAR MAN, GIVE, FAST and validation; specific emotional regulation skills reported were reducing emotional vulnerability, check the facts, opposite action to emotion; specific distress tolerance skills reported were pros and cons, TIPP, STOP, willing hands, and half-smile.

Several participants spoke spontaneously about how they benefited from the program through this development of a repertoire of skills, which, for some, replaced old and maladaptive or

ineffective forms of copings. When asked about how the group impacted her life, one person clarified that:

> Participant: Right. For me it had like pretty big and like very helpful impact like the skills were like legitimately really useful, like for me especially the interpersonal skills, things like you know FAST or like DEAR MAN that kind of stuff because I usually struggle with that kind of thing. So learning like a sort of blueprint of how to do these kind of things was generally really helpful for me.

**Subtheme Two: Relevance of Skills Increased Their Value.** For participants to see the value of a DBT skill, they needed to recognize its immediate relevance to a personal situation. Hearing about the real-life experiences of others was helpful in beginning to apply the DBT skills. One exception was a participant who would rather have devoted more time to the skills alone instead of any personal discussion, and this could be due to not relating to other members since he viewed his personality as vastly different to that of his groupmates'.

Only one person reported a disconnection with Westernized concepts and terminology, especially when it came to interpersonal effectiveness skills:

> Participant: … And- not everybody are very proficient in English, uh given the fact that most of us are actually Singlish speaking. *laughs* Um the content itself, the English content itself, it's- American English, not many of us will be very- understand every individual word. And even the way how they construct it, it's very American English, yeah it's not very- I think it can be improved in the sense that um- into a Singaporean style because, most of us are Singaporean attending the course, we're not the American Singaporeans *laughs*, we are- Singaporean Singaporeans, so we need- the English part has to connect well with the participants… Cause when it connects well with the participants, they will be more- its an attractive way for us to read more, rather than its '*wah* so *cheem* [local slang for deep or complicated] *ah*, so profound *ah* and then' *laughs*, and then it's just like, it's disconnect our- disengages our- interest, because so *cheem*, huh*?* Reading what- reading policy ah? Reading insurance policy *ah?* Or reading what document, so it scares off actually… it tends to scares off and then- it actually brings a disengage and disconnection to us already-

**Subtheme Three: Consistency and Continuity Needed in Skills Practice.** A majority of participants reported continuing to use DBT skills even after the program, with several naming a specific skill that they applied in the recent months. Several participants continued to refer to and use therapy materials from the group like handouts and worksheets after completing the program, even during difficult emotional situations. Overall, participants recognized that the skills needed consistent practice as well as thoughtful application. One person put it this way: '… because like- I myself have been trying to manage my emotions myself, right? So I know that it takes time and a lot of practice to manage…'

Reasons for discontinuing skills use were examined, and three participants attributed this to not remembering them or having attempted them but finding that they did not help. One person practiced skills less frequently after reminders from group leaders ceased following program completion, together with a reduced need for them following significant improvements in mental health.

**Subtheme Four: Challenges in Applying Skills, Especially During Crises.** For a subgroup of participants who verbalized facing challenges in skills use, the specific barriers were identified as questioning whether they were using the skill 'right' or other difficulties in translation from theoretical knowing to actual practice. For instance, one participant said:

> Participant: Uh… The skills are not useful enough to... But… is that my failure? Or the skills just… Is limited. … but unless I'm not using them like the most effectively because... What is it... Like oh yeah like- like that time they were like, like with opposite action right, they would say 'you have to use opposite action like all the way', or something like that. I remember they would always say 'all the way'. You have to do the skill all the way. And it was- it's still is very hard to do it all the way. So maybe it's not… maybe it's just my failure to use the skill but…

Anger and disappointment were expressed at the skills that did not work for them. Some participants faced unrelenting crises that overwhelmed them until they felt completely unable to try the skills, with someone dropping out of group amid a crisis.

### *Theme Seven: Changes in Skilfulness*

There were intrapersonal and interpersonal changes in this area. The latter involved applying the DBT skills to personal problems, mostly in an interpersonal context. The impact of skills on actual relationships was discussed, including changes (or lack thereof) in what DBT calls the 'transactions' between a person and their social environment. Intrapersonally, improvements in self-reflection and emotional awareness led to better emotion regulation and becoming less reactive; this was often recognized by the participant's social circle. Other internal changes included more confidence, willingness, consideration of others, self-kindness, and less self-criticism, sense of entitlement and perfectionism. For people who did not experience these changes, emotional avoidance and suppression appeared to maintain problems.

**Subtheme One: Learning and Application of Skills to Personal Situations.** Several participants described their experience of using DBT skills in solving personal problems. Apart from using the problem-solving skill taught in the emotion regulation module, they spoke about how chain analysis aided identification or recognition of the problem behaviour or key issue, and other skills helped to target the problem to effectively solve it. These included the application of mindfulness, dialectical thinking or reality acceptance and other distress tolerance skills. One person commented that he had an initial negative impression that certain skills were oversimplifying his problem but began to see how they could be applied after the individual therapist 'explained the nuances of the skill'.

More than half the sample (16 participants) shared about using specific skills in interpersonal situations. This included using skills in heated situations (e.g., receiving correction at work, being cut off by a friend, et), as well as improving relationships with a specific person in their life. The latter included intimate partners, family members, close friends, and colleagues.

**Subtheme Two: Variable Impact of Skills on Relationships and Power of One's Environment.** How these skills worked, according to various participants, was by decreasing arguments with others, improving expression of feelings and assertiveness, being able to remain calm and being able to communicate more openly and respectfully. One person expressed surprise at being able to engage in less anxious checking on her 'favourite person'. Participants also reflected on the

impact of skills on their actual relationships, which ranged from positive to none. Some spoke of changing their close relationships for the better or developing more mature, responsible relationships. Others found that there was little change either because the other party did not change (e.g., partner had been consistently healthy) or they themselves did not behave differently in those contexts (e.g., guardedness around family).

Relationships were a key environmental factor for several participants, some of whom elaborated on the difficulties of using skills when the environment was too powerful (e.g., family's level of dysfunction was too high) or when there were other reinforcers. For example, someone spoke about difficulties with obtaining emotional support when appearing well to others. She also opined that the interpersonal effectiveness skills taught only worked in the therapy context and faced difficulties with generalizing these skills to other settings or even not needing them elsewhere.:

> Participant: ‘Cause like I mean like the IE [interpersonal effectiveness] skills, you know like the DEAR MAN, FAST and GIVE, like. So I tell my psych[ologist] it only works in a very specific context, which most of the time is a therapeutic context. For example like, DEAR MAN. So like DEAR MAN the main point of it is the objective, so- to get stuff you want. So when I use it in like with my individual psych, you know, sometimes it gives me what I want but if not we will negotiate and you know it, it works out. But when I use it like in context that are non-therapy related such as school, it- it never ends up like that. Because I mean I know the nature of IE skills is that it's both sides but still like it doesn't translate you know, in terms of relationships.

**Subtheme Three: Emotion Regulation Evident in Increased Self-Reflection and Decreased Reactivity.** Narratives indicated improvements in emotional awareness (with many participants sharing about an increase in self-reflection and self-awareness), together with emotion regulation. The latter was also reportedly commonly observed by others, such as clients' parents, siblings, colleagues, and peers. Possibly connected with increased self-awareness, some people shared about being able to identify emotions more clearly in themselves. They were more able to regulate specific emotions like anger, sadness, and helplessness. There was also less fear or judgment of these emotions. Numerous individuals attributed this growth in self-awareness to homework tasks,

especially the diary card and written worksheets. Some highlighted that the structure provided by homework or the general program itself also aided in this increased self-awareness. A couple of people spoke about continuing to engage in self-monitoring after the group, especially with regards to interpersonal effectiveness, through the use of several skills such as chain analysis, wise mind or other mindfulness skills, validation, etc.

Numerous participants referred to experiencing a decrease in reactivity or emotional lability, together with decreased impulsivity. A few shared specific examples where they were able to prevent rash endings of friendships or jobs, decrease impulsive spending, or hurting others and other forms of aggression. One person even spoke about how this change has also influenced her parents to slow down themselves, following a prompting event. They attributed this change largely to a range of DBT skills, namely, mindfulness (e.g., wise mind, nonjudgment, effectiveness), distress tolerance (e.g., STOP, pros and cons, self-soothing), emotion regulation (opposite action to emotion), and interpersonal effectiveness to target relational problems, as well as chain and solution analyses. With regards to skills used to manage emotions, participants reported distress tolerance and emotion regulation skills; more specifically, self-soothing, opposite action to emotion and accumulating positives.

Briefly, there were a few participants who reported other internal changes in themselves following the program, such as increased confidence, willingness, consideration of others; decreased selfishness or entitlement and perfectionism. A handful spoke about using skills to accept the past or situations outside of their control. There was some indication of participants increasing in self-compassion or otherwise being able to employ self-validation, together with reductions in self-blame and self-criticism. According to them, this was accomplished through specific skills such as ACCEPTS (distraction), checking the facts, validation and chain analysis to regulate emotions of guilt or self-hatred, and lowered behaviours such as self-comparisons with others. Another person further spoke about using FAST skills to protect self-respect, in contrast to deprioritizing or debasing herself in front of others prior to skills training.

**Subtheme Four: Emotional Avoidance Related to Low Improvements in Regulation.** Emotional avoidance was reported by the participants who did not show improved emotional

awareness over the course of the program; a couple additionally spoke about dissociative symptoms or grounding techniques that were not taught in the group. They expressed frustration or distress at mindfulness skills that opened them up to unbearable emotions, and one person reported discomfort at learning emotion regulation skills instead of using emotional suppression. One person reported feeling occasional anger at the skills because these required confronting problems before he felt ready. However, after the DBT group he felt less inclined to run away from emotions and more inclined to face problems. There was a sense from multiple participants that they were overusing distress tolerance skills in service of avoidance, specifically TIPP skills or distraction. The over-reliance on distress tolerance was also due to difficulties with applying other skills during emotional situations, according to one participant. Someone used chain analysis while eliminating the emotional components of the skill. Yet another person reflected on having over-functioned in reasonable or logical mind before learning about the states of mind.

**Discussion**

This study retrospectively explored the experiences of individuals who underwent an adapted DBT program in a psychiatric outpatient setting in Singapore to gain understanding of key aspects that they thought influenced therapy outcomes, and the analysis generated seven themes. These were related to (1) the group members' needs for clarity regarding the commitments involved in DBT and their expected course of therapy; (2) the skills group being useful but busy; (3) navigating a shared space within the group, which was complex but beneficial; (4) forms of reciprocity between group and individual therapy modes; (5) phone coaching being underutilized; (6) the value of DBT skills that require continuous and consistent practice; (7) changes in skilfulness that were reflected in various interpersonal and intrapersonal processes.

Taking the themes together, there is a sense that the program heavily featured group skills training, possibly because it was originally implemented in early 2018 as an adjunctive transdiagnostic group therapy, before clinical decisions were made over time to incorporate all four DBT modes, albeit with modifications. Indeed, Theme Six expounded on how gaining a repertoire of skills was a main takeaway across multiple interviews and is indicative that the DBT program was largely meeting its objectives. In the study sample, all participants were offered access to the four

modes but also participated in the DBT program at its different stages of development – skills training delivered on a blended (in-person and online) or online platform, moving from closed groups to an open group that ran continuously for more than a year, etc.

It was evident that modifications across the four DBT modes were not without an impact on service users, and each mode is discussed here in turn. Firstly, Theme Two highlighted that the content of the skills group felt crammed and left some clients feeling like they needed more of the treatment. There have been positive effects demonstrated by several controlled studies on short-term DBT skills-only treatments (e.g., a 13- and 20-week group for BPD by Soler et al. [2009] and McMain et al. [2017] respectively; a 16-week group for transdiagnostic emotion dysregulation excluding BPD by Neacsiu et al. [2014b]; a 20-week group for binge eating disorder by Telch et al. [2001]) and even on shortened DBT (e.g., 6 months of standard DBT was compared to TAU and TAU+WL by Koons et al. [2001] and Carter et al. [2010] respectively; more recently, McMain et al. [2022] found that 6 months of standard DBT was not inferior to 12 months). However, it is unknown whether the participants in these other studies held similar opinions about treatment duration as our Singaporean participants. Given the adequacy of this dosage of DBT for clients overseas, it may be worth understanding more deeply exactly what local service users would like to see prioritized in a 12-week program. Although the IMH DBT program followed the standard format for DBT group skills training (i.e., opening mindfulness exercises, homework review, a short break, teaching of the new skills), it could be that these segments require readjustments for time, or that the delivery of these sessions (e.g., facilitation or teaching styles) be reviewed. Connecting the participants' feedback in Theme Two with that in Theme Six (Subtheme Three), which showed that clients needed continuity in their skills practice, perhaps a subgroup might need a longer program to aid in structuring their environment for ongoing skills practice (e.g., for motivation).

Theme Five showed that phone coaching was underused, with a main reason being that many participants disliked the waiting time if they were to access it after office hours. Another reason was uncertainty about who they would be speaking to on the other end of the line because the therapist team took turns to attend to calls on a scheduled roster. These concerns would be minimized in standard DBT, where the individual DBT therapist provides this mode around the clock and is

someone that the client would be most familiar with. Oliveira and Rizvi (2018) found that phone calls to DBT therapists averaged 2.55 per month in a sample of clients with BPD who were undergoing 6 months of standard DBT, which was not the case for many in the current sample, although it should be noted that not all of them presented with BPD to begin with since the intervention was intended to be transdiagnostic.

The presence of the therapist team was not always keenly felt by participants, although this varied depending on how the group leaders were scheduled to run the skills group (e.g., someone might encounter an additional therapist if his or her entry into the group overlapped with a rotation of group leaders on a roster) and on personal interactions with someone inside and outside of the group. In standard DBT, for instance, the individual DBT therapist's role is clearly distinguished from that of the group leader. In this adapted program, therapists held dual roles at times due to manpower constraints. This meant that certain clients experienced their individual therapist in the group as well, which provided less opportunity for interaction with another therapist in the DBT team. Another plausible explanation for this finding was that consultation occurred largely outside of the therapist-client dyads (in the therapist consultation team meetings), although it is considered an intervention and part of the dosage of DBT that a client is receiving. This, it was not unexpected that participants were not fully aware of the extent of involvement of other therapists. Nevertheless, this does not downplay the importance of the therapeutic alliance, which will be discussed later.

With respect to individual therapy, some brief differences were discussed in Theme Four (Subthemes One, Three and Four) between clients who saw DBT versus non-DBT individual therapists, but most clients experienced that the individual therapy's focus shifted towards reinforcing skills. Under the circumstances where a client entered the DBT program, it seemed that all therapists naturally aligned their interventions in their own therapy with DBT skills – and this was to the annoyance of one participant who observed a shift in her non-DBT therapist's style to an increased reference to homework assigned in the group sessions. However, the exact reasons for such a pattern in therapists were not investigated in this study, although it could be hypothesized that it could partially be due to the structure that is inherent in this type of treatment or the program's emphasis on skills training. Nevertheless, participants with DBT individual therapists were more likely to speak

about how the individual sessions personalized skills training or coaching for them, delved deeper into concepts that was first introduced in group, as well as addressed behaviours that interfered with therapy. This finding was unsurprising given that this is the function of individual therapy outlined by the treatment developer (Linehan, 1993).

The findings support the value of change-based processes, which are increasingly being studied in quantitative research of psychotherapies. Some of the factors influencing the relationship between this program and its outcome may be specific to DBT or may be common to different types of therapies (e.g., Weinberger & Rasco, 2007). We did not investigate such differences in-depth apart from asking participants who had experiences with other kinds of therapies about how they found DBT to be different, and their comments were presented in Theme Four (Subtheme Two) where participants reflected aloud on how it was a more structured or comprehensive therapy. Meta-synthesis beyond a single qualitative study will likely be needed to identify therapeutic factors unique to DBT, but two concepts often linked to DBT are (1) emotion regulation and (2) the learning and use of skills (e.g., Cavicchioli et al., 2019; Neacsiu et al., 2010a). In fact, limited access to emotion regulation strategies have been conceptualized as a contributor to difficulties with emotion regulation, as in the DERS (Gratz & Roemer, 2004). Our analysis illustrated that as users of DBT acquired new coping strategies and applied them to a range of stressful situations, they encountered desired outcomes. Numerous participants spoke about becoming less emotionally reactive in Theme Seven (Subtheme Three), which indicated improvements in emotion regulation. Through the course of the program, participants also gained self-awareness and independently reflected on their own emotions and behaviours. This fits well with DBT, which places emphasis on mindfulness practice as a core skill.

The viewpoints of clients appear to support the growing body of research on mechanisms of change. For example, Theme Three highlighted the importance of hope, which Mehlum (2021) called attention to in his review of mechanisms of change in DBT for treatment of BPD. In his other research, a decrease in hopelessness levels during 19 weeks of DBT-A was found to mediate the frequency of self-harm up to three years later for adolescents with suicidal and self-harming behaviours (Mehlum et al., 2019). While DBT is reported to lead to a reduction of hopelessness in

some studies (e.g., Koons et al., 2001), hope and hopelessness are not constructs regularly measured in quantitative DBT studies. Rather, much of the literature is focused on clinical outcomes of the therapy such as reductions in suicidality and self-harm (Panos et al., 2014). In this sense, hope may be generally understudied by DBT researchers, especially since DBT therapists actively endeavour to instil hope by clarifying 'a life worth living' from the outset of the therapy (Linehan & Wilks, 2015). Given that it was identified as meaningful in the current study, it may be worthwhile for future research to determine if any other components of DBT (e.g., in the one-to-one sessions) could be instrumental in increasing or maintaining hope apart from a shared learning experience in the group (Theme Three, Subtheme Two).

Participants also shared about factors associated with group processes. A sense of belonging, which occurs when an individual feels connected to, acknowledged, or even embraced by members of a specific group (Levett-Jones & Lathlean, 2009), is not a novel concept and has been linked with group identity (e.g., Baumeister & Leary, 1995; Terry & Hogg, 1996). It has been highlighted as an important element in other DBT groups, such as in Beanlands et al.'s (2021) thematic analysis on a DBT skills training group for undergraduate nursing students. They found that being with other group members who had a shared experience was an important part of the group process. Even with a different type of therapy group for BPD, such as Farrell et al.'s (2009) schema-focused psychotherapy group, group members disclosed that they felt a sense of belonging within a homogenous diagnostic group. In the present study, Theme Three highlighted the bonds between group members and how changes to the format of the group (i.e., from closed to open) impacted on this sense of belonging (see Subtheme Five). According to their narratives, it appeared that participants who started and ended their skills training experience together felt more bonded or cohesive, possibly due to an increased familiarity with one another (alluded to by some of the participants) or more opportunities for shared learning; the latter was clarified in Theme Three. In group therapy literature, the psychoanalytical concept of the group-as-a-whole posits that the group can function as its own entity (Agazarian, 1989), and the shift towards an open group in the DBT program meant that the DBT group membership became variable, moving participants towards individuation. Narratives of participants who joined the open group at a later stage, after it had been running for more than a year, hinted at a

reduced level of cohesion (e.g., being unbothered by group attrition), in contrast to the narratives of the subgroup of members who had pioneered the open group together. One of the leading experts on group therapy described group cohesiveness as a curative factor (Yalom, 1995), enabling members to engage in therapeutic self-disclosure and self-exploration. While these processes are not the primary aim in DBT groups, which has rules that limit personal disclosures especially if these distract from a clear focus on teaching and practicing skills (e.g., of self-harm that may trigger other members; Linehan, 1993), it may be that reciprocal or collaborative use of the skills taught (such as having to apply interpersonal effectiveness even during difficult in-group interactions) facilitated group cohesiveness and a sense of belonging. Other researchers have also previously discussed how these constructs can be associated with other factors that establish the conditions for therapeutic group processes or otherwise contribute to positive therapy outcomes, such as reducing dropout rates and increasing interpersonal attractiveness of the group or therapy alliance with the group leader (e.g., Budman et al., 1990; Butler & Fuhriman, 1983).

The counterpart to group cohesiveness is possibly the therapeutic alliance (also referred to as the working alliance). The former refers to the relationship between the client and other group members while the latter refers to the therapist-client relationship (Norton & Kazantzis, 2016; Webb et al., 2011). The therapeutic alliance has consistently been linked with positive treatment outcomes across therapeutic modalities and identified as holding a mediative role regarding change in psychotherapy (Baier et al., 2020). The participants in this study spoke about the importance of trust in the individual therapist from the outset of the program, as the majority expressed that their decision to join DBT was contingent on having this trust in place to begin with (Theme One). Once inside the group, Theme Three (Subtheme Seven) illustrated the significance of a bond or alliance with the group leaders who became treatment providers for every client who enrolled into the program. In this study, interviews explored individuals' experiences of each DBT mode of treatment, and multiple participants reported a low cognizance of the therapist consultation team, as mentioned earlier. Cavicchioli et al. (2021), who conducted an exploratory study on group relationships in a DBT program for alcohol and substance use disorders, found that positive work relationships showed increases in member-member relationships but decreases in member-leader relationships over the

course of treatment. They hypothesized that as group members acquired the skills taught, the group leaders' interventions became less relevant. While this pattern was not apparent in the present study because comparisons between various types of group relationships were not explicitly investigated, the participants did value when others in the group shared relatable examples from their own lives regardless of role as group leaders or members (see Theme Three). In a three-arm RCT comparing a DBT group, mentalization-based therapy group and a control group, post-treatment improvements in therapeutic alliance and group cohesion were significantly higher in both experimental groups than controls and related to positive psychotherapy outcomes (Khabir et al., 2018). Further research specific to DBT groups is needed to understand the precise role that these constructs play in the process of change, and which DBT interventions (e.g., the core skills or other validation and dialectical strategies) contribute to cultivating the therapeutic alliance.

The study of course has its limitations, the first being the self-selection by participants. Although the study team reached out to all participants who enrolled into the DBT program from January 2021 and onwards, and although the majority of program completers consented to the study and interviews were held at least three months post-treatment, it is likely that the study sample largely represented clients who found the clinical and/or research program to have value-added to themselves, thereby contributing to possible selection bias. Only a minority of participants were clients who dropped out from the clinical program, with the others either declining to participate, not showing up for a scheduled research visit for taking informed consent or becoming uncontactable by their therapist(s) altogether. This means that the views and lived experiences of treatment non-completers may not have been adequately captured, although researchers tried their best to recruit these individuals.

An additional limitation was the multiple roles of some of the researchers, who also functioned as individual or group therapists. This was partly discussed in the research procedures, where the need to navigate insider and outsider roles, in a somewhat dialectical fashion, was introduced. Insider status enables better understanding of issues due to familiarity with the political and cultural landscape of the organisation, contributing immediately applicable knowledge to practice (Smyth & Holian, 2008). Bonner & Tolhurst (2002) opined that insiders extract true data from

relating directly to participants, while Smyth & Holian (2008) offer a balanced view that privileged access and data could be limited by subjects' willingness to participate and divulge information. Still others believe that objectivity can only be achieved by outsiders (e.g., Simmel, 1950), while some adopt a dialectical approach by arguing that researchers cannot be rigidly separated into either group of insiders / outsiders (e.g., Merton, 1972); qualitative researchers especially need to navigate 'the space between' due to multi-layered complexities of human experience inherent in their work (Dwyer & Buckle, 2009). On a scale of 1 to 6 of 'closeness' to the study topic (Herr & Anderson, 2005), the analyst would identify as a '3' i.e., an insider in collaboration with outsiders, keeping aware that one may move along this continuum over the course of research (Hellawell, 2006). The advantages and disadvantages of insider research will be revisited in Chapter 6.

The last research limitation also involved a finding from this study – that the format of delivering the group skills training could not be controlled for in a naturalistic setting. With an open group format, participants also experienced changes in group leaders who were running the group on a rotational basis in order to decrease therapist burnout and promote sustainability of the program. They spoke about having to adjust to different facilitation styles whenever there was a switch in leader (see theme three, subtheme seven). Adherence to DBT was discussed in Study 1. While I had hoped to study the differences in experiences of online versus in-person skills training, majority of the sample underwent the former in light of the COVID-19 pandemic. Elsewhere, others have shared observations that group members with specific difficulties in close relationships functioned better in online groups for reasons such as feeling less emotionally flooded and the protectiveness of a screen barrier (Weinberg, 2021). Only a minority of the participants in this study spoke about these, perhaps because it was difficult for them to reflect on comparisons between online skills training and an imagined in-person skills training. Apart from the first cohort of recruited participants, the others had no reference point to the latter. Perhaps future studies can investigate this as treatment settings transition back to in-person or hybrid forms of therapy in a post-COVID-19 time.

Despite these limitations, this is the first study to track the experiences of participants within a DBT program that was undergoing modifications as part of the implementation process and in response to extenuating circumstances. The current research showed the impact of adaptations made

to standard DBT, yet the group remained a platform for key therapeutic processes of change to occur. Based on the current evidence on group psychotherapy, these processes appear independent of the type of psychotherapy, and future studies could explore how these can be understood in a DBT-specific context alongside other empirical research on mechanisms of change in DBT. Perhaps reflective of the early stage of implementation of this therapy in the country, participants also pointed out that there was low public knowledge of DBT and how to join the program in general. More research is needed on the dissemination and implementation of this therapy in clinical settings that are new to it, which I turn to in the next chapter / study.

# Chapter 5: Study 3 – A 'Chicken-and-Egg' Paradox: Understanding Service Providers' Experiences with Dialectical Behaviour Therapy Implementation

Implementing new clinical programs does not take place immediately and can be a gradual process. Across providers and organizations, this requires two to four years (Bertram et al., 2015; Fixsen et al., 2001). Studies on DBT implementation are few, as more attention has historically been paid to treatment efficacy and effectiveness. Like other complex interventions, defined as comprising multiple interacting components (Craig et al., 2008), DBT can be challenging to implement and sustain within an already complex healthcare environment. King et al. (2018) reported that out of 468 DBT teams that were trained between 1995 and 2016 in the United Kingdom, at least 212 were inactive. Common barriers to implementation identified by these teams included staff turnover, the absence of organisational support and financing (Swales et al., 2012; King et al., 2018), and it is not known whether these barriers were specific to the local context where this research was conducted.

In order to improve health services by translating scientific knowledge into clinical practice, implementation research was developed as an empirical approach for understanding why an intervention is implemented well in one setting but not another (Eccles & Mittman, 2006). It distinguishes between treatment effectiveness and implementation effectiveness (Proctor et al., 2011), meaning that effective programs can be poorly implemented, and ineffective programs can be well implemented. Thus, if desired client outcomes do not occur in response to a new intervention, it is fundamental to identify whether the results occurred because the intervention itself was ineffective or was set up inadequately. Various implementation theoretical frameworks have been developed over time to guide implementation researchers, some of which will be briefly described below.

## Known Implementation Frameworks

The Promoting Action on Research Implementation in Health Services (PARIHS; Kitson et al., 1998, 2008) posits that successful implementation is contingent on the strength of three core elements of evidence, context and facilitation, as well as their interrelationships. Its developers later revised the framework to the integrated version as i-PARIHS (Harvey & Kitson, 2016), promoting an emphasis on four elements instead, that is, Innovation (previously termed as 'Evidence', which the authors now acknowledge is only one type of knowledge about the intervention being applied),

Context, Facilitation and Recipients (e.g., patients undergoing DBT as well as implementers); each further comprising sub-elements. In the i-PARIHS, the micro, meso and macro levels of the context in which recipients are based are further highlighted.

The Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009) presents five major domains: Intervention Characteristics, Inner Setting, Outer Setting, Characteristics of Individuals, and the Process of Implementation. These are made up of 37 constructs or subdomains identified through expansive literature searches across disciplines and a synthesis of constructs from 19 implementation and dissemination theories. Within DBT literature, selected Inner Setting variables were first studied by Ditty et al. (2015), who found that team communication, team cohesion, team climate and supervision were possible facilitators for effective DBT implementation. King et al. (2018) also utilized the CFIR to investigate barriers and facilitators to DBT and reported that constructs within the Intervention Characteristics (quality of the DBT evidence base), Outer Setting (acceptability of DBT by patients) and Individual Characteristics (practitioner skills, practitioner attitudes) were rated by DBT teams as important aids to DBT implementation.

The Core Implementation Components model (CIC; Fixsen et al., 2005, 2009) includes the following seven components of staff selection, preservice and in-service training, continued consultation and coaching, staff performance assessment or evaluation, decision support data systems, facilitative administrative support, and systems interventions. The CIC conceptualizes that all components are integrated non-linearly, and changes in the content or process of one can impact on another, necessitating ongoing adaptation of component areas to maintain a coherent system and ensure successful implementation.

**An Implementation Framework for DBT**

The first critical literature review on DBT implementation was conducted by Toms et al., (2019), which examined 60 papers (14 focused explicitly on implementation) to generate and synthesize 788 codes. They then proposed a preliminary DBT implementation framework derived from integrating the PARIHS, CFIR and CIC, which incorporated all facilitators and barriers generated from the critical review. The constructs in this framework are presented in Table 13, and

Toms and colleagues (2019) provide a detailed description of each in their original article. To our best knowledge, this DBT-based framework has not yet been tested or applied.

**Table 13**

*DBT Implementation Framework (Toms et al., 2019)*

| Elements | Sub-Elements | Definition |
|---|---|---|
| Context | Culture | How things are done – norms, values, assumptions – within the intervention setting |
| | Leadership | Management behaviour that supports change and effective communication within the organization |
| | Evaluation | Data collection and feedback mechanisms across individual, team and systems levels in the organisation |
| | Suitability and goal fit | Needs and goals of the organisation, including readiness to change at the individual, team, or organisational levels |
| | Individual characteristics | Beliefs, attitude and behaviour of all stakeholders |
| | Facilitative administrative supports | Interaction between organisation behaviour and practitioner perception of it |
| | System interventions | Strategies used by the organization when working with external systems e.g., study teams or service providers |
| Evidence | Research and published guidance | Soundness and persuasiveness of published research e.g., whether this serves to inform decision-making |
| | Clinical experience and professional knowledge | Views of clinicians administering or considering DBT |
| | Preferences and experiences | Views of DBT recipients; distinguished from the 'individual characteristics' sub-element of context |
| | Local knowledge | From systematically collected and analysed data by the organization; distinguished from 'evaluation', a sub-element of context |
| Facilitation | Strategies | Strategies for implementation are often multifaceted, and may involve DBT-specific approaches such as organisational pre-treatment (Swales, 2010) |
| | Support | How the organization assists facilitators e.g., through advice or networking |
| | Training | A specific form of support |
| | Coaching and ongoing consultation | Availability and quality of supervision; ongoing education and professional development |
| | Facilitator skills/ qualities | How the facilitator works 'with individuals, teams, and organisations to prepare and support them through the implementation process' (Seers et al., 2012) |
| | Recruitment and selection | Methods of recruitment and selection to form the team |
| DBT | Design quality and packaging | How the DBT is presented to the organisation, which may include the history and origins of the intervention |
| | Adaptability | Trialability of DBT; being adaptable to different circumstances |
| | Complexity | How complicated DBT is to implement |
| | Cost | How expensive DBT is for the organisation |

As the model was informed by the PARIHS and not the i-PARIHS, the four sub-elements that make up the evidence component were incorporated, not the revised seven sub-elements that make up innovation. Nevertheless, constructs outlined in different implementation frameworks often overlap, despite some differences in definitions and terminologies (Larsen et al., 2013), as further illustrated in a more in-depth examination of the sub-element of context below.

**The Importance of Context**

A scoping review by Nilsen and Bernardsson (2019) that investigated how context is conceptualized found that most implementation frameworks do not explicitly use the term 'context'; for example, the CFIR uses the terms 'inner setting' and 'outer setting' that distinguish between contextual influences within and outside of an organization respectively (Damschroder et al., 2009). A well-known definition is offered by Pfadenhauer et al. (2015; 2016), who proposed that context is 'a set of characteristics and circumstances that surround the implementation effort' (Pfadenhauer et al., 2016, p. 13). The DBT implementation framework's definition of context follows that of the PARIHS, framing it as 'the environment or setting that the implementation takes place in' (Toms et al., 2019, p. 2), and the sub-elements of context listed in Table 1 demonstrate that context is not limited to a physical setting. Context is therefore a multi-dimensional concept, and these researchers highlighted an active and dynamic interaction between the intervention being implemented (in this case, DBT) and its context, often occurring at multiple levels. Along this line of thought, Pfadenhauer and her team of researchers (2017) posit that implementation and context can be constitutive parts of DBT itself. Over the course of implementation, the context responds to DBT and its users, and even less is documented in the current evidence base about this process.

In the footsteps of researchers who have emphasized that context cannot be ignored (e.g., Wells et al., 2012), the current study focuses on the element of context, to understand how it is likely interacting with the implementation of a new therapy in our local setting. Much like other psychotherapies (Koç & Kafa, 2019), majority of the knowledge on DBT is derived from outcomes studied in Western culture and contexts. The evidence base outside of the United States spans across Canada, Denmark, New Zealand, Norway, Spain and Australia (DuBose et al., 2019), with emerging research from China, Taiwan, Hong Kong and Malaysia (e.g., Chang et al., 2022; Keng et al., 2021;

Liang et al., 2021). New programs are being initiated in the Asia-Pacific Region (Loo et al., 2021) and more research is expected to be generated in the coming decade. A focus on gaining in-depth understanding of the context in which service users are accessing DBT would be valuable, allowing for an eventual synthesis of the perspectives of different stakeholders in this longitudinal process of implementation.

## Method

To assess service providers' experiences with implementing DBT in Singapore, a study using a mixed-methods sequential explanatory design was conducted. Specifically, it aimed to explore their views on the processes of establishing DBT in Singapore, which would offer unique insights into important organisational-level facilitators and barriers to implementation. The research questions are:

1. What is the value, in stakeholders' opinions, of implementing DBT in their clinical setting?
2. What contextual barriers are there to doing so?

### *Ethics Statement*

This mixed-methods study was supported by the James Cook University (JCU) Higher Degree by Research Competitive Funding (ref: HDR202101). The study protocol was approved on 9th June 2021 by the JCU Human Research Ethics Committee (ref: H8436).

### *Participants*

Participants were recruited using purposive sampling, as per recommended practice in implementation research (Palinkas et al., 2015), and gave voluntary written informed consent. Potential participants were approached if they were working directly with patients or clients in a clinical capacity at the time of recruitment; this included individuals based in public healthcare, governmental and community agencies, as well as private practitioners. They were invited to register for the study if they were currently, previously (e.g., involved in local DBT programs that had closed) or had contemplated practicing DBT in Singapore. This meant that everyone in the study sample had a clinical practice background, and they were invited to clarify whether they were functioning in a primarily clinical or administrative (managerial) role at the current workplace. Demographic characteristics of the sample are presented in Table 14.

**Table 14**

*Demographic Characteristics*

| Variable | *n* | % |
|---|---|---|
| Female | 16 | 76.19 |
| Male | 5 | 23.81 |
| Age Range | | |
| 20s | 2 | 9.52 |
| 30s | 14 | 66.67 |
| 40s | 3 | 14.29 |
| 50s | 2 | 9.52 |
| Ethnicity | | |
| Chinese | 17 | 80.95 |
| Indian | 1 | 4.76 |
| Others | 3 | 14.29 |
| Highest Education Level | | |
| Bachelor's degree | 1 | 4.76 |
| Master's degree | 14 | 66.67 |
| Postdoctoral degree or equivalent | 4 | 19.05 |
| Medical degree | 2 | 9.52 |
| Profession | | |
| Psychology | 19 | 90.48 |
| Psychiatry | 2 | 9.52 |
| Primary Job Role at Present | | |
| Clinical | 16 | 76.19 |
| Administrative or managerial | 5 | 23.81 |
| Years of Clinical Practice | | |
| 0 to 11 months | 1 | 4.76 |
| 1 to 2+ years | 1 | 4.76 |
| 3 to 5+ years | 5 | 23.81 |
| 6 to 10 years | 7 | 33.33 |
| More than 10 years | 7 | 33.33 |
| Years of DBT Practice | | |
| 0 to 11 months | 1 | 4.76 |
| 1 to 2+ years | 10 | 47.62 |
| 3 to 5+ years | 7 | 33.33 |
| 6 to 10 years | 3 | 14.29 |
| More than 10 years | 0 | 0 |
| DBT Training Background | | |
| Yes (Self-rated) | 19 | 90.48 |
| No (self-rated) | 2 | 9.52 |
| Formally trained (Researcher-rated) | 14 | 66.67 |
| Not formally trained (Researcher-rated) | 7 | 33.33 |

*Note.* Formal training included online training or formal workshops only.

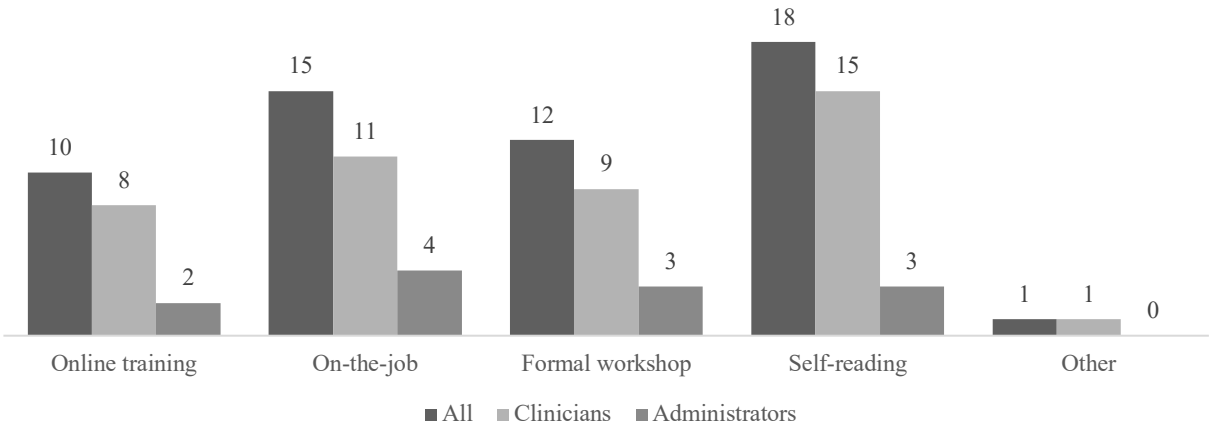
Regarding DBT training background, participants self-rated (indicated 'yes' or 'no') whether they had pursued any form of training on a demographic questionnaire (see Appendix J). A closer

examination of each participant's DBT training background was conducted after collating all responses; it was found that three participants rated themselves as having DBT training but had only independently read a DBT manual but not endorsed any other training activities, and one other person reported having DBT training after reading the manual and attending an 'informal workshop'. As such, two groups were developed after the data were collected, labelled as 'formally trained (researcher-rated)' and 'not formally trained (researcher-rated)' and these individuals were re-categorized under the latter.

Figures 5 and 6 illustrate the various forms of DBT training and types of DBT activities that participants reported going through. Given the emphasis by DBT experts or consultants on distinguishing DBT consultation team from traditional teams (Sayrs, 2019) and initiating consultation teams (e.g., Swales & Dunkley [2019]), coupled with clinicians' reports of team consultation meetings as supportive and important (e.g., Walsh et al., 2018), participants were additionally categorized into two groups of having experience with a team (based on the DBT activities they endorsed in Figure 6, this was defined as being in an active DBT program and/or having been in a deactivated DBT program or a DBT training program) versus having none or limited team-based experience (i.e., not having such experiences). These groups were compared during analyses.

**Figure 5**

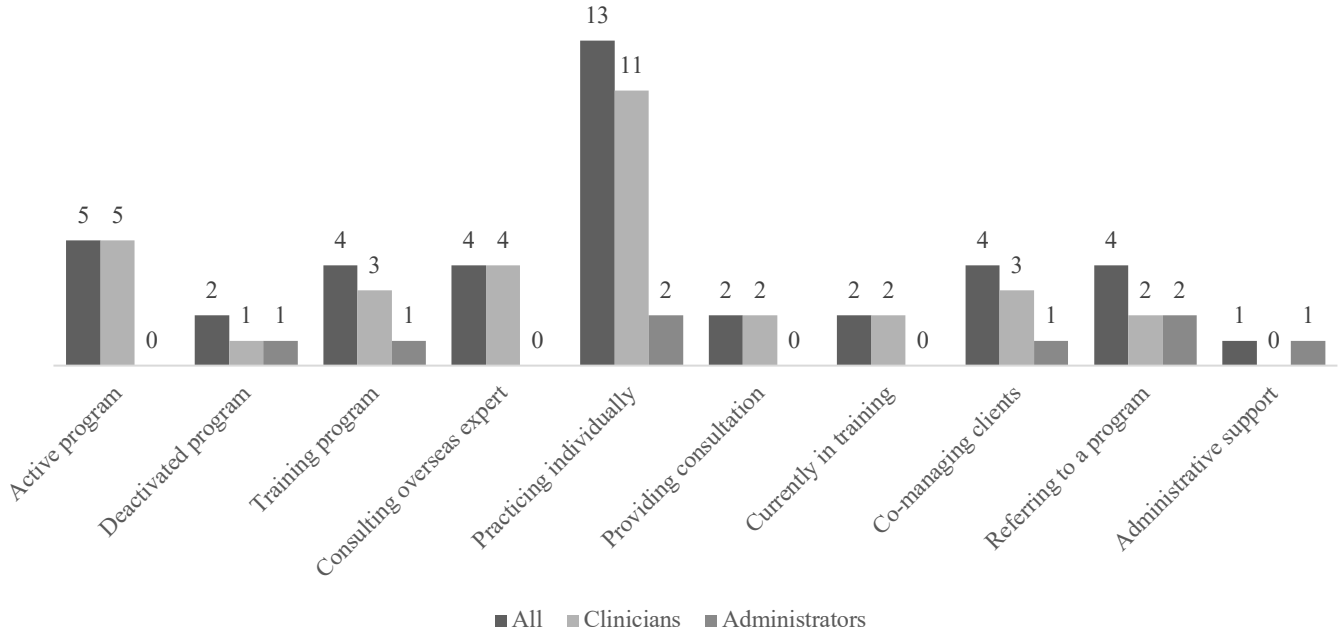
*Experience with Types of DBT Training by Primary Job Role*




*Note.* This bar chart illustrates the distribution of the types of DBT training endorsed in survey responses, $N$ =21. The responses are grouped by all participants who endorsed a specific item, participants who reported a primarily clinical job role or a primarily administrative (managerial) job role, and presented according to the categories specified on the demographic questionnaire i.e., online training in DBT, on-the-job training / supervision from a DBT-trained clinician, formal DBT training / workshop, self-reading of a DBT protocol or manual, and other types (in this case, one person endorsed this and specified having 'attended an informal workshop').

**Figure 6**

*Involvement in Types of DBT Activities by Primary Job Role*




*Note.* This bar chart illustrates the distribution of the types of DBT activities endorsed in survey responses, *N* =21. The responses are grouped by all participants who endorsed a specific item, participants who reported a primarily clinical job role or a primarily administrative (managerial) job role, and presented according to the categories specified on the demographic questionnaire i.e., being part of an active DBT program, being part of a previous DBT program that was deactivated, previously part of a DBT training program, consulting with an overseas DBT expert, being not currently part of a DBT team and practicing individually, providing DBT consultation / supervision, currently training in DBT, co-managing client(s) with a DBT therapist, being a referrer to a DBT program, providing administrative / management support to DBT therapists. No one endorsed consulting with an overseas DBT team, thus it is not reflected in the chart.

### *Procedure*

Data collection occurred in two consecutive phases. A demographic questionnaire, together with quantitative questionnaires on factors influencing implementation (see Appendix M), was first administered online. As all participants were clinicians, information on clinical experience (e.g., highest education level, years of postgraduate work experience, DBT training activities completed, and current degree of involvement in DBT) were gathered. These distinguished DBT therapists from auxiliary DBT providers, such as management who provide administrative support for clinical programs and non-DBT practitioners who referred patients to DBT either directly or indirectly (e.g., psychiatrists who refer patients to psychologists and do not determine the psychotherapeutic approach

used with them, or psychologists who referred patients who were already doing a non-DBT individual therapy with them).

To protect participant anonymity, they were not asked to identify the DBT team(s) or program(s) they were affiliated with; neither were they asked to identify their workplace. The data were analysed and used to guide data collection in the next qualitative phase (Creswell et al., 2003; Tashakkori & Teddlie, 1998). An opt-in, semi-structured interview was then conducted, where participants were offered the choice to be interviewed by an insider researcher (the principal investigator) or an external researcher (a research assistant outside the IMH's employment). More information on the interview schedule and its development is available below. It was piloted with a practicing clinical psychologist.

Thirty-two participants started on the online surveys, and surveys that were incomplete were withdrawn. Eleven surveys responses were withdrawn, resulting in a final sample size of 21. Out of this, 17 people consented to the second phase, but one person was non-responsive when contacted and multiple attempts to schedule an interview time with another person were unsuccessful. As a result, 15 interviews were conducted between September to November 2022 – 12 and 3 by the insider and external researchers respectively.

Interviews were audio-recorded and transcribed verbatim. Participants were provided the option to be addressed by pseudonyms during the interview to protect their identity. Numbers were additionally assigned to each participant's transcripts in order to anonymise all participants. Similar to Study 2, 20% of the participants were contacted for a member check, as per recommendations by Birt el al., (2016). In this study, three out of the four persons contacted for the member check responded, and their inputs were considered to produce the written report. All largely agreed that the themes fit with their experience and were clearly written.

***Ethical Considerations***

As an insider researcher, the principal investigator was mindful of ongoing relationships with participants (e.g., as colleagues), and worked closely with the primary advisor to ensure the study's objectives are achieved without bias through thorough consideration of the ethics involved. At debriefs, participants were offered the opportunity to discuss concerns about the project with the

candidate's advisor(s), separately from the data collection context. They were informed that anonymity will be ensured where possible, although the organisation's identity would inevitably be known when authors publish this research (e.g., journal articles) under their own name. Hence, all participants may choose to review data that would be included from them (e.g., quotes) before publication, in addition to writing up all findings such that participants are non-identifiable, even if some context (e.g., organisations that individuals belong to) is forfeited.

***Outcome Measures and Study Materials***

No measure yet exists for assessing all of the constructs that are highlighted in the DBT implementation framework (Toms et al., 2019). The measures selected to map onto sub-elements of context (also see Table 15 for more information) are listed below, and also available in Appendix M.

***Organisational Readiness to Change Assessment (ORCA).*** The ORCA (Helfrich et al., 2009) is a 77-item survey that yields results on 19 subscales. It was designed by the Veterans Health Administration (VA) to assess the three core elements of PARIHS that is, evidence, context and facilitation. The subscales related to context were administered, with some VA-specific items rephrased for increased relevance to other treatment settings. Context comprises six subscales. Two subscales assess dimensions of organizational culture: one for senior leadership or clinical management, and one for staff members. Two subscales assess leadership practice: one focused on formal leadership, particularly in terms of teambuilding, and one focused on attitudes of opinion leaders for practice change in general (as a measure of informal leadership practice). One subscale assesses evaluation in terms of setting goals, together with tracking and communicating performance. The final subscale measures general resources to support practice changes once they had been made an organizational priority; this is because research on organizational innovation suggests that slack resources, such as funds, staff time, facilities, and equipment, are important determinants of successful implementation (McCormack et al., 2002).

***Context Assessment Index (CAI).*** The CAI (McCormack et al., 2009) consists of 37 items that assess the context (or culture) in which people receive healthcare or care is provided in clinical areas. It is possible to construct the CAI summary and analysis into five factors related to practice (Collaborative Practice, Evidence-Informed, Respect for Persons, Practice Boundaries, Evaluation), as

well as three elements (Culture, Leadership, and Evaluation). In this study, we score the three CAI elements described by McCormack (2008) in the 'Guide to using the context assessment index (CAI)' from the University of Ulster/University College Cork.

***Texas Christian University Organizational Readiness for Change (TCU ORC).*** The TCU ORC (Lehman et al., 2002) is an instrument with 115 items to measure organizational factors that influence implementation. It comprises 18 subscales that load onto the main scales of motivation for Change, Adequacy of Resources, Staff Attributes and Organizational Climate. It should be noted that the Staff Attributes domain comprised the subscales of Growth, Efficacy, Influence, Orientation and Adaptability, but Orientation is typically not computed. This information is presented in Appendix N instead. Multiple versions exist for counselling staff and for program directors or supervisors. In this study, all participants indicated whether their primary role was that of a clinician or administrator, and the relevant ORC version was administered accordingly, i.e., the TCU ORC Treatment Staff Version TCU ORC-S) or the TCU ORC Treatment Director Version (TCU ORC-D). 16 participants completed the TCU ORC-S and 5 participants completed the TCU ORC-D. For quantitative analyses, scores on both versions were combined for all subscales except for the Training Exposure and Utilization domain on the TCU ORC-S (comprised of four subscales i.e., Training Satisfaction, Training Exposure, Training Utilization – Individual-level and Training Utilization – Program-level) as this was unique to the Staff Version.

***Evidence-based Practice Attitude Scale-36 (EBPAS-36)***. The EBPAS-36 (Rye et al., 2017) is a brief version of the 50-item Evidence-based Practice Attitude Scale (EBPAS-50; Aarons et al., 2012). It examines the feelings of therapists about using new therapeutic interventions. The EBPAS-36 retains the 12 measurement domains of the EBPAS across 36 items, and demonstrated cross-cultural validity in US and Norwegian sample (Rye et al., 2017). As the current sample consisted of practicing clinicians, the EBPAS-36 was administered to all participants. A shorter, 15-item version of the EBPAS was also administered to community clinicians in a study on DBT training (Navarro-Haro et al., 2019).

**Table 15**

*Proposed Means of Measurement for Sub-Elements of Context as Defined by Toms et al., 2019*

| Sub-Element of Context (see Toms et al., 2019) | Variables | Means of Measurement |
|---|---|---|
| Culture | Leadership culture and staff culture | Organizational Culture (2 dimensions of Senior Leadership/Management and Staff) subscales from the ORCA; Culture subscale from the CAI |
| Leadership | Leadership | Leadership Practice (Formal Leadership) subscale from the ORCA; Leadership subscale from the CAI |
| Evaluation | Measurement; Evaluation | Measurement subscale from the ORCA; Evaluation subscale from the CAI |
| Suitability and goal fit | Organizational readiness to change; program needs for improvement, immediate training needs, pressures for change | Motivation for Change domain from the TCU ORC |
| Individual characteristics | Growth, efficacy, influence, adaptability; service providers' attitudes towards DBT | Staff Attributes domain from the TCU ORC; EBPAS-36 |
| Facilitative administrative supports | Resources, opinion leaders; offices, staffing, training, equipment, internet; training satisfaction, training exposure, training utilization | Resources and Leadership Practice (Opinion Leaders) subscales from the ORCA; Adequacy of Resources domain from the TCU ORC; Training Exposure and Utilization domain from the TCU ORC-S |
| System interventions | Mission, cohesion, autonomy, communication, stress, change | Organizational Climate domain from the TCU ORC |

ORCA = Organisational Readiness to Change Assessment; CAI = Context Assessment Index; TCU ORC = Texas Christian University Organizational Readiness for Change; TCU ORC-S = TCU ORC Treatment Staff Version; EBPAS-36 = Evidence-based Practice Attitude Scale-36.

An interview guide informed by quantitative analyses (of findings from the respective groups as a whole) as well as the DBT implementation framework (Toms et al., 2019) and the i-PARIHS Facilitation Guide (Harvey & Kitson, 2016) was developed, with open-ended questions for participants to elaborate on perceived barriers to and facilitators of the implementation of DBT in Singapore (see Appendix O). The constructs of the DBT implementation framework (Toms et al., 2019) of particular interest were the clinical experience and professional knowledge of DBT therapists (a sub-element of evidence) and all the sub-elements of context. Where questions were formed based on quantitative findings, participants were notified that these are based on group results, and not their own results. Separate interview schedules were developed for participants who had or

had not implemented any form of DBT. For the former, different interview prompts were developed for participants who identified mainly as clinicians or mainly as administrators.

***Quantitative Analyses***

For independent variables with multiple levels (i.e., years of experience in clinical practice, years of experience in practicing DBT, level of training in DBT [number of forms of training endorsed on a checklist] and level of involvement in DBT [number of DBT-activities endorsed on a checklist]), linear regression analyses were conducted. It should be noted that all independent variables were categorical – for example, years of clinical experience or years of DBT experience were categorized by ranges of 0 to 11+ months, 1 to 2+ years, 3 to 5+ years, 6 to 10 years and more than 10 years (see Table 13 and Appendix M for more information).

For independent variables with two levels (i.e., being an administrator versus a clinician, being in an active DBT program versus not, having experience with a DBT team versus not and having formal DBT training versus not), non-parametric statistical tests were utilized. This was chosen over parametric t-tests because of the small sample size, which increased the likelihood that assumptions of normality would not be met. The first two comparisons were a priori tests, while the latter two comparisons were post-hoc tests. Before data collection, it was planned that analyses would compare groups of participants who rated ‘yes’ or ‘no’ to all the different types of DBT training they underwent and different types of DBT activities they were involved in. However, this was not performed due to practical limitations – some of these proposed groupings were disproportionately unequal in size e.g., 2 individuals who were in a deactivated DBT program could not be compared with 19 individuals who were not in a statistically meaningful way. Despite the unevenly distributed groups of 5 individuals in an active DBT program versus 16 who were not, the non-parametric tests were conducted for this comparison because it was expected that there would be a limited number of participants falling into the first group given that there were so few DBT teams in Singapore, and their differences were of particular interest. The same rationale was applied to comparisons between clinicians ($n$ = 16) and administrators ($n$ = 5), as it was anticipated that auxiliary staff would be less familiar with such a therapy as compared to direct therapy providers. The opinions of these groups would later be qualitatively explored to answer the study’s research questions – the interview

schedule made distinctions between implementers, non-implementers, clinicians and administrators.

One final comparison of interest would be between professions – we had expected that other helping professions such as counsellors or social workers would have responded to the survey; however, only psychologists and psychiatrists responded. Less than 10% of the recruited sample comprised psychiatrists, and as the distribution between both groups was too uneven to reasonably conduct any pairwise comparisons, patterns in the descriptive data were explored when planning for the second phase of the study.

In all analyses, the dependent variables were results of the various subscales from the ORCA, CAI, TCU ORC-S, TCU ORC-D, EBPAS-36, as well as the ORCA Context scale and CAI Overall Context scale. Of all the questionnaires administered, only the CAI yielded a total score assessing the context in which clinical care is provided and the readiness of this context to implement evidence-based practices such as DBT (labelled as CAI Overall Context). The ORCA examines three core elements that are critical for successful implementation of evidence-based practice, and only the Context element was administered in this study (labelled as ORCA Context scale). As such, both were also included as dependent variables. Analyses were conducted using the IBM Statistical Package for Social Science (SPSS).

Given the small sample size, which was anticipated due to DBT being a relatively newer treatment to the country and few service providers having adequate experience with DBT, the most robust tests were selected. To reduce the degree of false positive rates from running multiple analyses (Jafari & Ansari-Pour, 2019), a correction to *p*-values was applied from $p = .05$ to a more conservative .01. Where relevant, trends in the quantitative data (at $p = .05$) will be reported.

***Qualitative Analysis***

Framework analysis (Ritchie & Spencer, 1994), which offers a systematic approach of working with the qualitative data set generated using audio-recorded semi-structured interviews, was employed. This method was selected over thematic analysis because the interview schedule examined pre-defined topics of interest, and framework analysis thus allowed for a deeper understanding of a priori concerns to be developed together with emerging themes. There are four types of research questions that Ritchie & Spencer (1994) identified that they believe framework analysis can address:

i. Contextual: identifying the form and nature of what exists

ii. Diagnostic: examining the reasons for, or causes of, what exists

iii. Evaluative: appraising the effectiveness of what exists

iv. Strategic: identifying new theories, policies, plans or actions

This present study's questions fit within the first and third categories, in exploring stakeholders' perceptions of how DBT can add value to their clinical work given the needs that their clinical population have (contextual) together with what barriers exist to introducing the successful delivery of DBT services (evaluative). Pulling together all the information generated in this thesis may answer diagnostic (e.g., why is DBT being or not being used?) or strategic questions in future (e.g., what are the types of clinical services required or how can systems support new therapy programs?). The process of conducting the framework analysis is discussed in more detail below.

## Results

### *Quantitative Findings*

Linear regression analyses were conducted to examine the relationship between years of DBT experience and the various scale scores. It was found that DBT experience significantly and negatively predicted scores on the Program Needs subscale on the TCU ORC, $R^2 = .31$, $F(1, 19) = 8.49$, $\beta = -.56$, $p = .009$, which meant that as more experience was gained in practicing DBT, views that programs needed additional guidance (in various areas such as assessing client needs and measuring client performance, matching needs with services, raising the overall quality of therapy, increasing client program participation, etc) decreased. DBT experience additionally significantly predicted TCU ORC Change, $R^2 = .40$, $F(1, 19) = 12.62$, $\beta = .63$, $p = .002$, meaning that more experience in practicing DBT improved perceptions that the organizational climate encouraged novel treatment ideas by staff, enabled changes in procedures to meet new conditions, and supported a general attitude to use changing technology or to try different techniques, etc.

For these analyses investigating years of DBT experience, there were other results that lost significance when the *p*-value was adjusted from .05 to .01; these are nevertheless presented because the second phase of the study investigates some of the interesting trends in the data. Firstly, there was a relationship between DBT experience and both dimensions of Organizational Culture subscales

from the ORCA, i.e., the Senior Leadership / Clinical Management dimension (labelled as ORCA Leadership Culture) and the Staff Members dimension (labelled as ORCA Staff Culture). Years of DBT experience predicted ORCA Leadership Culture, $R^2 = .21$, $F(1, 19) = 4.98$, $\beta = .46$, $p = .038$. Years of DBT experience also predicted ORCA Staff Culture, $R^2 = .29$, $F(1, 19) = 7.79$, $p = .012$. This meant that those with more DBT experience tended to hold a better perception of their leadership culture (e.g., that the senior leadership / clinical management rewards creative ways to improve client care, that clinical staff opinions are solicited, and that improvements in client education and client participation in treatment are supported), and staff culture (e.g., that the staff members have personal responsibility for and cooperative to improve client care, are willing to innovate and receptive to change in clinical processes). Next, years of DBT experience predicted scores on TCU ORC Efficacy, $R^2 = .20$, $F(1, 19) = 4.78$, $\beta = .45$, $p = .042$, meaning that the more experienced participants tended to perceive having the necessary skills to conduct effective individual and group therapy, being able to accomplish work tasks, being effective on the job, etc. It also predicted scores on TCU ORC Influence, $R^2 = .24$, $F(1, 19) = 6.11$, $\beta = .49$, $p = .023$, means that the more experienced participants saw themselves as sharing their knowledge with other staff, being regarded by other staff (e.g., as a source of information, being sought out for advice and opinions, or viewed as a leader) and influencing decisions of other staff in their organizations. DBT experience predicted TCU ORC Autonomy, $R^2 = .25$, $F(1, 19) = 6.46$, $\beta = .50$, $p = .020$, meaning that having more experience was connected with feeling that treatment decisions for clients could be made independently and that there was trust by the management in staff's professional judgment, together with being given broad authority in treating clients and being able to try out different techniques without excessive rules. DBT experience predicted TCU ORC Communication, $R^2 = .26$, $F(1, 19) = 6.50$, $\beta = .51$, $p = .020$, meaning that having more experience tended to increase ratings in how much staff suggestions are given fair consideration, the effectiveness of formal and informal communication channels and adequacy of open discussions about program issues, staff members' freedom to pose questions or concerns and whether they are kept informed. Lastly, simple linear regression analyses found that years of DBT experience predicted scores on two different subscales on the TCU ORC-S, i.e., Training Exposure [$R^2 = .29$, $F(1, 14) = 5.65$, $\beta = .54$, $p = .032$] and Training Utilization on an

Individual-level [$R^2$ = .35, $F$(1, 14) = 7.66, $\beta$ = .60, $p$ = .015], meaning that DBT experience was linked with increasing ratings of the frequency of attending internal and external training workshops, as well as ratings of personally trying out, adopting and even encouraging other staff to use the new techniques learnt from such training.

The same analyses were repeated separately for i) clinical experience; ii) level of involvement in DBT, as measured by the number of DBT-activities endorsed on a checklist (see Figure 6 for a list) and iii) level of training in DBT, as measured by the number of types of DBT training endorsed on a checklist (see Figure 5 for a list). The first two analyses showed some significant results at the $p$ = .05 level, but these disappeared when adjusted to $p$ = .01. Namely, i) clinical experience predicted TCU ORC Change scores [$R^2$ = .26, $F$(1, 19) = 6.63, $\beta$ = 0.51, $p$ = .019]; ii) involvement in DBT predicted scores on the Evaluation subscale from the CAI (labelled as CAI Evaluation) [$R^2$ = .21, $F$(1, 19) = 4.89, $\beta$ = -0.45, $p$ = .039]. Such findings were indications of possible trends that i) having more experience in general clinical practice led to more positive perceptions that the organization was conducive or promoted change; ii) being more heavily involved in DBT-related activities led to opinions that there were fewer sources of information on performance (individual, team and system-based) or methods of evaluation (clinical, performance, economic, experience) and fewer forms of feedback. The simple linear regression analyses conducted to examine the relationship between exposure to DBT training and the dependent variables showed no significant effects. This was the case even when 'self-reading of a DBT protocol or manual' was removed from the analysis because it may not be considered equivalent to the other types of training as a standalone training activity, or even incorporated into some formal workshops (e.g., such reading is a prerequisite for the DBT Intensive™ training [Landes & Linehan, 2012]).

Mann-Whitney U tests were conducted to examine whether there were significant differences between the dependent variables (scale and subscale scores) between individuals who identified their primary job role as clinical or as administrative. The same comparisons were used for all subsequent analyses that compared between groups for the remaining independent variables with two levels (i.e., being in an active DBT program versus not, having experience with a DBT team versus not and having formal DBT training versus not), and descriptive information is provided in Table 16.

**Table 16**

*Distribution in Scores on All Measures by Comparison Groups*

| Subscale or Scale | Primary Job Role | | | Involvement in a DBT Program | | | Experience in a DBT Team | | | Exposure to DBT Training | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean Ranks | | Z-score | Mean Ranks | | Z-score | Mean Ranks | | Z-score | Mean Ranks | | Z-score |
| | Clinical (*n* = 16) | Administrative (*n* = 5) | | In Active Program (*n* = 5) | Not in Active Program (*n* = 16) | | Experience with a Team (*n* = 9) | No / Limited Experience (*n* = 12) | | Formal Training (*n* = 14) | No Formal Training (*n* = 7) | |
| **Culture** | | | | | | | | | | | | |
| ORCA Leadership Culture | 9.53 | 15.70 | 2.00 | 3.00 | 13.50 | -3.40 | 8.61 | 12.79 | -1.57 | 11.00 | 11.00 | 0.00 |
| ORCA Staff Culture | 10.19 | 13.60 | 1.09 | 8.90 | 11.66 | -0.88 | 11.83 | 10.38 | -0.54 | 12.07 | 8.86 | -1.13 |
| CAI Culture | 9.97 | 14.30 | 1.37 | 7.60 | 12.06 | 1.41 | 10.33 | 11.50 | -0.43 | 11.18 | 10.64 | -0.19 |
| **Leadership** | | | | | | | | | | | | |
| ORCA Leadership Behaviour | 9.31 | 16.40 | 2.27 | 4.80 | 12.94 | 2.60 | 9.56 | 12.08 | -0.94 | 11.61 | 9.79 | -0.64 |
| CAI Leadership | 9.63 | 15.40 | 1.86 | 5.20 | 12.81 | 2.45 | 9.56 | 12.08 | -0.94 | 10.57 | 11.86 | -0.46 |
| **Evaluation** | | | | | | | | | | | | |
| ORCA Measurement | 10.50 | 12.60 | 0.67 | 8.60 | 11.75 | 1.00 | 11.61 | 10.54 | -0.40 | 11.86 | 9.29 | -0.91 |
| CAI Evaluation | 9.66 | 15.30 | 1.79 | 6.00 | 12.56 | 2.08 | 8.67 | 12.75 | -1.50 | 10.89 | 11.21 | -0.11 |
| **Suitability and Goal Fit** | | | | | | | | | | | | |
| TCU ORC Program Needs | 11.41 | 9.70 | 0.54 | 12.10 | 10.66 | 0.46 | 9.83 | 11.88 | -0.75 | 10.39 | 12.21 | -0.64 |
| TCU ORC Training Needs | 12.69 | 5.60 | 2.24 | 15.33 | 9.66 | 1.78 | 11.11 | 10.92 | -0.07 | 10.11 | 12.79 | -0.94 |
| TCU ORC Pressures for Change | 11.06 | 10.80 | 0.08 | 9.20 | 11.56 | 0.75 | 11.06 | 10.96 | -0.04 | 11.21 | 10.57 | -0.23 |
| **Individual Characteristics** | | | | | | | | | | | | |
| TCU ORC Growth | 10.41 | 12.90 | 0.79 | 6.90 | 12.28 | 1.71 | 10.33 | 11.50 | -0.43 | 10.64 | 11.71 | -0.38 |
| TCU ORC Efficacy | 10.97 | 11.10 | 0.04 | 9.30 | 11.53 | 0.71 | 11.67 | 10.50 | -0.43 | 11.36 | 10.29 | -0.38 |
| TCU ORC Influence | 9.38 | 16.20 | 2.16 | 8.00 | 11.94 | 1.24 | 10.22 | 11.58 | -0.50 | 12.04 | 8.93 | -1.09 |
| TCU ORC Adaptability | 10.22 | 13.50 | 1.05 | 7.70 | 12.03 | 1.39 | 9.17 | 12.38 | -1.19 | 10.11 | 12.79 | -0.95 |
| EBPAS-36 Requirements | 10.84 | 11.50 | 0.21 | 8.60 | 11.75 | 1.01 | 10.00 | 11.75 | -0.65 | 10.29 | 12.43 | -0.76 |
| EBPAS-36 Appeal | 10.69 | 12.00 | 0.42 | 10.30 | 11.22 | 0.29 | 13.00 | 9.50 | -1.30 | 12.43 | 8.14 | -1.51 |
| EBPAS-36 Openness | 10.44 | 12.80 | 0.79 | 6.90 | 12.28 | 1.79 | 10.44 | 11.42 | -0.38 | 11.96 | 9.07 | -1.06 |
| EBPAS-36 Divergence | 10.72 | 11.90 | 0.38 | 13.90 | 10.09 | 1.21 | 13.83 | 8.88 | -1.83 | 12.43 | 8.14 | -1.61 |
| EBPAS-36 Limitations | 11.91 | 8.10 | 1.25 | 12.10 | 19,66 | 0.48 | 10.00 | 11.75 | -0.67 | 10.86 | 11.29 | -0.16 |
| EBPAS-36 Fit | 11.84 | 8.30 | 1.15 | 12.10 | 10.66 | 0.47 | 12.06 | 10.21 | -0.69 | 11.68 | 9.64 | -0.73 |
| EBPAS-36 Monitoring | 12.00 | 7.80 | 1.40 | 13.80 | 10.13 | 1.23 | 10.11 | 11.67 | -0.60 | 11.54 | 9.93 | -0.59 |
| EBPAS-36 Balance | 11.03 | 10.90 | 0.04 | 10.80 | 11.06 | 0.08 | 12.94 | 9.54 | -1.26 | 11.36 | 10.20 | -0.38 |
| EBPAS-36 Burden | 11.06 | 10.80 | 0.08 | 14.00 | 10.06 | 1.26 | 10.61 | 11.29 | -0.25 | 10.04 | 12.93 | -1.02 |

***(continued on p.141)***

**Table 16 (Continued)**

| Subscale or Scale | Primary Job Role | | | Involvement in a DBT Program | | | Experience in a DBT Team | | | Exposure to DBT Training | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean Ranks | | Z-score | Mean Ranks | | Z-score | Mean Ranks | | Z-score | Mean Ranks | | Z-score |
| | Clinical ($n$ = 16) | Administrative ($n$ = 5) | | In Active Program ($n$ = 5) | Not in Active Program ($n$ = 16) | | Experience with a Team ($n$ = 9) | No / Limited Experience ($n$ = 12) | | Formal Training ($n$ = 14) | No Formal Training ($n$ = 7) | |
| EBPAS-36 Job Security | 11.91 | 8.10 | 1.22 | 9.10 | 11.59 | 0.80 | 11.89 | 10.33 | -0.58 | 11.82 | 9.36 | -0.87 |
| EBPAS-36 Organizational Support | 11.28 | 10.10 | 0.38 | 11.40 | 10.88 | 0.17 | 11.44 | 10.67 | -0.29 | 10.75 | 11.50 | -0.26 |
| EBPAS-36 Feedback | 10.72 | 11.90 | 0.38 | 7.10 | 12.22 | 1.63 | 10.89 | 11.08 | -0.07 | 9.57 | 13.86 | -1.51 |
| EBPAS-36 Total | 10.72 | 11.90 | 0.38 | 6.50 | 12.41 | 1.86 | 10.44 | 11.42 | -0.36 | 10.64 | 11.71 | -0.37 |
| **Facilitative Administrative Supports** | | | | | | | | | | | | |
| ORCA Opinion Leaders | 10.00 | 14.20 | 1.35 | 7.60 | 12.06 | 1.43 | 10.06 | 11.71 | -0.62 | 11.46 | 10.07 | -0.50 |
| ORCA General Resources | 9.41 | 16.10 | 2.13 | 4.80 | 12.94 | 2.58 | 9.11 | 12.42 | -1.22 | 10.61 | 11.79 | -0.41 |
| TCU ORC Offices | 11.41 | 9.70 | 0.54 | 9.20 | 11.56 | 0.75 | 8.44 | 12.92 | -1.65 | 10.25 | 12.50 | -0.79 |
| TCU ORC Staffing | 11.34 | 9.90 | 0.46 | 11.50 | 10.84 | 0.21 | 8.83 | 12.63 | -1.41 | 11.57 | 9.86 | -0.61 |
| TCU ORC Training | 9.78 | 14.90 | 1.64 | 5.30 | 12.78 | 2.40 | 10.39 | 11.46 | -0.40 | 10.79 | 11.43 | -0.23 |
| TCU ORC Equipment | 9.75 | 15.00 | 1.67 | 10.30 | 11.22 | 0.29 | 10.83 | 11.13 | -0.11 | 11.21 | 10.57 | -0.23 |
| TCU ORC Internet | 8.88 | 17.80 | 2.84 | 6.20 | 12.50 | 2.01 | 8.83 | 12.63 | -1.40 | 11.64 | 9.71 | -0.68 |
| TCU ORC-S Training Satisfaction | 8.50 ($n$ = 16) | 0.00 ($n$ = 0) | N. A. | 7.20 ($n$ = 5) | 9.09 ($n$ = 11) | 0.75 | 8.86 ($n$ = 7) | 8.22 ($n$ = 9) | -0.27 | 7.40 ($n$ = 10) | 10.33 ($n$ = 6) | -1.21 |
| TCU ORC-S Training Exposure | 8.50 ($n$ = 16) | 0.00 ($n$ = 0) | N. A. | 5.00 ($n$ = 5) | 10.09 ($n$ = 11) | 2.00 | 7.57 ($n$ = 7) | 9.22 ($n$ = 9) | -0.69 | 8.75 ($n$ = 10) | 8.08 ($n$ = 6) | -0.28 |
| TCU ORC-S Training Utilization – Individual-level | 8.50 ($n$ = 16) | 0.00 ($n$ = 0) | N. A. | 6.40 ($n$ = 5) | 9.45 ($n$ = 11) | 1.21 | 7.71 ($n$ = 7) | 9.11 ($n$ = 9) | -0.59 | 9.25 ($n$ = 10) | 7.25 ($n$ = 6) | -0.83 |
| TCU ORC-S Training Utilization – Program-level | 8.50 ($n$ = 16) | 0.00 ($n$ = 0) | N. A. | 5.70 ($n$ = 5) | 9.77 ($n$ = 11) | 1.61 | 6.71 ($n$ = 7) | 9.89 ($n$ = 9) | -1.35 | 7.95 ($n$ = 10) | 9.42 ($n$ = 6) | -0.61 |
| **System Interventions** | | | | | | | | | | | | |
| TCU ORC Mission | 8.88 | 17.80 | 2.88 | 5.50 | 12.72 | 2.33 | 9.67 | 12.00 | -0.87 | 11.21 | 10.57 | -0.23 |
| TCU ORC Cohesion | 10.41 | 12.90 | 0.79 | 4.80 | 12.94 | 2.58 | 9.89 | 11.83 | -0.72 | 10.89 | 11.21 | -0.11 |
| TCU ORC Autonomy | 10.00 | 14.20 | 1.35 | 7.50 | 12.09 | 1.47 | 9.78 | 11.92 | -0.80 | 11.86 | 9.29 | -0.91 |
| TCU ORC Communication | 9.00 | 17.40 | 2.66 | 4.90 | 12.91 | 2.54 | 9.83 | 11.88 | -0.75 | 11.07 | 10.86 | -0.08 |
| TCU ORC Stress | 12.00 | 7.80 | 1.33 | 16.40 | 9.31 | 2.25 | 13.00 | 9.50 | -1.29 | 11.50 | 10.00 | -0.53 |
| TCU ORC Change | 9.22 | 16.70 | 2.37 | 5.60 | 12.69 | 2.25 | 10.22 | 11.58 | -0.50 | 11.50 | 10.00 | -0.53 |
| **Context** | | | | | | | | | | | | |
| ORCA Context | 9.34 | 16.30 | 2.19 | 4.60 | 13.00 | 2.64 | 9.44 | 12.17 | -1.00 | 11.07 | 10.86 | -0.08 |
| CAI Overall Context | 9.81 | 14.80 | 1.57 | 6.60 | 12.38 | 1.82 | 9.56 | 12.08 | -0.92 | 10.86 | 11.29 | -0.15 |

Abbreviations Used in Table 16: ORCA = Organisational Readiness to Change Assessment; CAI = Context Assessment Index; TCU ORC = Texas Christian University Organizational Readiness for Change; TCU ORC-S = TCU ORC Treatment Staff Version; EBPAS-36 = Evidence-based Practice Attitude Scale-36.

It was found that individuals who identified holding a primarily clinical role at work scored significantly lower than individuals in a primarily administrative role on the TCU ORC subscales of Internet, Mission and Communication ($U = 6.00$, $p = .004$; $U = 6.00$, $p = .004$; $U = 8.00$, $p = .008$ respectively), meaning that they perceived having less easy or convenient access to using the Internet or e-mail at work (e.g., to communicate with other treatment professionals on online platforms or to access treatment information), less understanding about program goals and objectives (e.g., how it fits as part of the treatment system, whether duties clearly relate to program goals and the management has a clear plan for the program) and poorer communication within the organization (e.g., how much staff suggestions are given fair consideration, the effectiveness of formal and informal communication channels and adequacy of open discussions about program issues, staff members' freedom to pose questions or concerns and whether they are kept informed).

Regarding membership in an active DBT program or team, Mann-Whitney U tests firstly showed that the group in DBT programs showed significantly lower scores on three ORCA subscales and the ORCA Context Scale than the group who was not. The first subscale was the ORCA Senior Leadership / Clinical Management dimension (henceforth labelled as ORCA Leadership Culture), $U = 0$, $p = .001$, meaning that persons in an active DBT program held a poorer perception of their leadership culture (e.g., that the senior leadership / clinical management does not reward creative ways to improve client care, clinical staff opinions are not solicited, and improvements in client education and client participation in treatment are not supported) than others who were not. The second subscale was the ORCA Leadership Practice – Formal Leadership (henceforth labelled as ORCA Leadership Behaviour), $U = 9.00$, $p = .009$, meaning that those in an active program opined that the senior leadership / clinical management in their organizations were less successful at providing effective management support for implementation (e.g., continuous improvement of client care, defining areas of responsibility for clinical managers and staff, and promoting team building to solve problems of clinical care). The third subscale was General Resources, $U = 9.00$, $p = .010$. indicating that

individuals who are currently active in a DBT program perceived having less support in terms of budget, training, facilities, and staffing. As persons currently in an active program scored significantly lower on the ORCA Context Scale, $U = 8.00$, $p = .008$, this indicates that the overall context in which implementation is occurring may not be experienced as conducive for this process. Apart from the ORCA, individuals who were currently in an active DBT program scored significantly lower on the Cohesion subscale from the TCU ORC than individuals who were not, $U = 9.00$, $p = .010$, meaning that they rated poorer perceptions of staff getting along without friction, working together, cooperating, helping each other and doing their fair share of work more poorly than other individuals who were not currently in DBT programs.

No significant results at $p$ levels of .01 or .05 were found for comparisons between having experience with a DBT team and having none or limited DBT team-based experience, as well as participation in formal training versus no formal training in DBT. Similar to the series of regression analyses, there were additional Mann-Whitney U test results that lost significance after $p$-values were adjusted to .05. These are shown in Table 17 for clarity.

**Table 17**

*Mann-Whitney U Test Results with Significance at p = .05*

| Subscale or Scale | Groupings | Analysis Result | | Description |
|---|---|---|---|---|
| | | ***U*** | ***p*** | |
| **Culture** | | | | |
| ORCA Leadership Culture | Clinicians; Administrators | 16.50 | .046 | Clinicians tended to hold a poorer view of leadership culture |
| **Leadership** | | | | |
| ORCA Leadership Behaviour | Clinicians; Administrators | 13.00 | .023 | Clinicians tended to hold a poorer view of leadership behaviour |
| CAI Leadership | DBT Program; No Program | 11.00 | .014 | Individuals in active programs tended to hold a poorer view of leadership as being less transformational, empowering, or effecting role clarity and teamwork |
| **Evaluation** | | | | |
| CAI Evaluation | DBT Program; No Program | 15.00 | .038 | Individuals in active programs tended to perceive that there was less all-rounded feedback |
| **Suitability and Goal Fit** | | | | |
| TCU ORC Training Needs | Clinicians; Administrators | 13.00 | .025 | Clinicians tended to perceive needing more training for working with clients |
| **Individual Characteristics** | | | | |
| TCU ORC Influence | Clinicians; Administrators | 14.00 | .031 | Clinicians tended to perceive having lower influence on other staff |
| **Facilitative Administrative Supports** | | | | |
| ORCA General Resources | Clinicians; Administrators | 14.50 | .034 | Clinicians tended to perceive lower resources to support change |
| TCU ORC Training | DBT Program; No Program | 11.50 | .017 | Individuals in active programs tended to perceive that training was less prioritized or unavailable |
| TCU ORC Internet | DBT Program; No Program | 16.00 | .045 | Individuals in active programs tended to perceive having less access to and usage of the internet at work |
| TCU ORC-S Training Exposure | DBT Program; No Program | 10.00 | .045 | Individuals in active programs rated lower attendance in training workshops during the past one year |
| **System Interventions** | | | | |
| TCU ORC Mission | DBT Program; No Program | 12.50 | .020 | Individuals in active programs tended to perceive having less clarity in the program goals and objectives |
| TCU ORC Communication | DBT Program; No Program | 9.50 | .011 | Individuals in active programs tended to perceive less effectiveness and openness in internal communications |
| TCU ORC Stress | DBT Program; No Program | 13.00 | .024 | Individuals in active programs tended to perceive more strain and frustration from workload or job pressures |
| TCU ORC Change | Clinicians; Administrators | 11.50 | .018 | Clinicians tended to perceive a less positive attitude towards change and less ease in implementing new ideas |
| TCU ORC Change | DBT Program; No Program | 13.00 | .025 | Individuals in active programs tended to perceive less positive attitudes towards change and less ease in implementing new ideas |
| **Context** | | | | |
| ORCA Context Scale | Clinicians; Administrators | 13.50 | .029 | Clinicians tended to experience overall organizational context as less conducive for change |

ORCA = Organisational Readiness to Change Assessment; CAI = Context Assessment Index; TCU ORC = Texas Christian University Organizational Readiness for Change; TCU ORC-S = TCU ORC Treatment Staff Version; EBPAS-36 = Evidence-based Practice Attitude Scale-36.

To study possible differences between psychologists and psychiatrists who were amidst of or thinking about implementing DBT, raw scores and other descriptive statistics were manually reviewed. Of particular interest was the EBPAS-36 (see Table 18), which was the only questionnaire that was modified to invite all participants to rate items specific to DBT and reflects service providers' attitudes. One stark difference between professions was in job security related to holding expertise in DBT, which we thought was worth exploring during the qualitative interviews.

**Table 18**

*Distribution in Scores on the EBPAS-36 by Professional Group*

| Subscale | Professional Group | | | |
|---|---|---|---|---|
| | Psychology ($n$ = 19) | | Psychiatry ($n$ = 2) | |
| | **Mean** | ***SD*** | **Mean** | ***SD*** |
| EBPAS-36 Requirements | 2.26 | 0.96 | 2.50 | 1.18 |
| EBPAS-36 Appeal | 2.86 | 0.64 | 2.67 | 0.47 |
| EBPAS-36 Openness | 2.72 | 0.76 | 2.50 | 0.71 |
| EBPAS-36 Divergence | 1.07 | 0.81 | 1.33 | 0.00 |
| EBPAS-36 Limitations | 0.65 | 0.83 | 0.33 | 0.47 |
| EBPAS-36 Fit | 3.39 | 0.47 | 2.83 | 0.24 |
| EBPAS-36 Monitoring | 0.81 | 0.91 | 0.00 | 0.00 |
| EBPAS-36 Balance | 2.46 | 0.71 | 2.67 | 0.00 |
| EBPAS-36 Burden | 0.63 | 0.62 | 1.17 | 0.24 |
| EBPAS-36 Job Security | 2.32 | 1.07 | 0.50 | 0.71 |
| EBPAS-36 Organizational Support | 2.65 | 0.64 | 1.83 | 0.24 |
| EBPAS-36 Feedback | 3.16 | 0.61 | 3.50 | 0.71 |
| EBPAS-36 Total | 3.23 | 0.37 | 2.99 | 0.02 |

As aforementioned, significant findings and other observations were used to develop the interview schedule. It was pertinent to utilize qualitative data to further explore the differences in experiences between key groups of participants, particularly to understand why clinicians and members of active DBT programs appeared to hold more negative perceptions in many of the domains on these questionnaire items than administrators and individuals who were not in DBT programs respectively. Along with this, it was reasonable to explore why experience in practicing DBT, and not experience in general clinical practice, predicted more positive experiences of various sub-elements of the contexts that participants considered implementing DBT in. The process is outlined in the next section.

### *The Process of Conducting Framework Analysis*

For phase two of the study, the five stages of Framework Analysis outlined by Ritchie and Spencer (1994) were followed.

***Stage One: Data Familiarization.*** This stage involved 'immersion' (Ritchie & Spencer, 1994, p. 179) into the available data, where I listened to interview recordings (only by participants who had consented for deidentified data to be handled by the insider researcher), read available transcripts (these were uploaded onto a Microsoft Excel spreadsheet) and discussed emerging ideas with a member of the study team (the primary advisor) who had the most experience with qualitative research. Notes were made on the initial six transcripts, where properties of every chunk of text (responses to interview questions) were written down in a new column on the spreadsheet. It is not a requirement in framework analysis to review all of the interviews in Stage One (Srivastava & Thomson 2009), and this was not done because there were delays in the transcription of some of the later interviews.

***Stage Two: Developing a Thematic Framework.*** The initial ideas and interpretations identified from the previous stage were reviewed, keeping the main research questions in mind together with the topics from the interview schedule. In this stage, a thematic framework or index is generated, which is then used to facilitate the next stages of analysis. 590 preliminary codes had been generated from six of the seven interviews from stage 1, which were organized according to interview questions by participant in an initial matrix (see Appendix P) on a new sheet on Microsoft Excel.

A new row then added to write initial ideas that materialised from reading and re-reading the initial matrix (also see Appendix P). These initial ideas were then fitted into key areas of 'experience of DBT implementation', 'value of DBT implementation and barriers to DBT implementation'. Broad headings of a preliminary framework were derived from these. The first draft of a framework contained 13 index categories with a total of 49 index items, and the data was jointly refined by the principal investigator and the primary advisor via four further rounds of reviews, where categories were merged, and new categories were generated. For an example of the former, preliminary index items related to the various DBT modes of treatment such as phone coaching or consultation team were eventually summarized into a single item i.e., 'value of a DBT mode'. Overly narrow index items

like ‘first exposure to DBT was during postgraduate training’ were broadened to become ‘earliest exposure to DBT’ from the first to fifth draft.

Indexing was carried out by piloting the first draft of the index to the first three transcripts, categorizing them according to index items line by line. By the third draft of the index, this process had been repeated on the first five transcripts. To ensure that the framework would eventually be adequately responsive to the full dataset, the fourth draft of the index was applied to seven new transcripts to check for other concepts that were potentially missing. The changes made during each revision were documented. The fifth and final draft of the index is presented in Table 19 below.

**Table 19**

*Thematic Framework*

| **Index Headings and Items** | **Item No.** |
|---|---|
| Motivations for Using DBT | |
| Relevance of DBT to target client population | 1.1 |
| Value of a DBT mode | 1.2 |
| Pursuit of training opportunities or professional development | 1.3 |
| Using DBT-interventions as an adjunctive treatment / integratively | 1.4 |
| Clinicians' willingness or interest to work with BPD | 1.5 |
| Clinicians' need for structure for treating challenging cases | 1.6 |
| Compatibility or fit with own personal values | 1.7 |
| Cognizance of benefits to the organization | 1.8 |
| | |
| Use of DBT | |
| Level of familiarity with DBT | 2.1 |
| Extent of DBT implementation | 2.2 |
| Fidelity to DBT | 2.3 |
| Description of clinical setting or clinician's employment status/work role | 2.4 |
| Earliest exposure to DBT | 2.5 |
| | |
| Clients' Responses to DBT | |
| Initial buy-in to starting DBT | 3.1 |
| Receptiveness to specific DBT-interventions | 3.2 |
| | |
| Navigating the Organizational Hierarchy or Structure | |
| Autonomy in planning and delivering treatment | 4.1 |
| Working with stakeholders for treatment delivery | 4.2 |
| Buy-in or receptivity from key stakeholders/organization members | 4.3 |
| Heterogeneity in perspectives based on workplace roles | 4.4 |
| Access / availability of resources (or other issues related to resource distribution) | 4.5 |
| Routine collection of data or being data-informed | 4.6 |
| Need for local research or formal program evaluation to promote DBT | 4.7 |
| Openness and vulnerability in staff teams | 4.8 |
| | |
| Navigating the Wider Context (National Landscape) | |
| Impact of professional regulation on DBT | 5.1 |
| Impact of DBT accreditation | 5.2 |

***Stage Three: Indexing.*** In this stage, the index is systemically applied to all transcripts, where an index code is applied after re-reading the textual data line by line. This candidate made decisions on whether the data fit within the framework or index (at the time, this was draft 4 of the Index) in consultation with the primary advisor. At times, the data did not fit cleanly within the existing index, and new index items were created. This process overlapped with the previous stage, where the index presented in Table 6 was finalized after going through two-thirds of the interviews. Subsequently, this candidate returned to previous transcripts and coded all the interviews according to the finalized index.

***Stage Four: Charting.*** After indexing the data, it is then constructed into thematic charts on a new Excel sheet, which Ritchie et al. (2013) have proposed as a means for re-ordering the data into coherent groupings. All verbatim quotes were extracted and organized according to index item number (columns) and participant number (one quote per row) to form a second matrix (see Appendix Q). During this time, the transcripts were re-read for further immersion into the data, and summaries were developed for each participant's interview responses in new rows, categorized by index item (also see Appendix Q). Like stage 3, this was not a process conducted in isolation, and this candidate went back-and-forth between charting and indexing to reorganize any quotes into the chart. Two or more index numbers (up to a maximum of four) were occasionally assigned to a quote, and thus certain quotes could be in more than one cell on the Excel sheet. Over the course of charting, 99 subthemes emerged, which were recorded on an additional row. In preparation for the next stage, the subthemes were transferred into yet another sheet on Microsoft Excel. These subthemes were originally lengthy and written in full sentences; a summary is available in Appendix R.

***Stage Five: Mapping and Interpretation.*** For this stage, Microsoft Word was used after a preliminary list of themes was drafted on the Excel sheet. Initially, in attempt to directly answer the two research questions, these themes were sorted according to (i) the value of DBT held by stakeholders, (ii) the barriers to DBT implementation and (iii) the integration of both ideas. After this proved to be too constricted in focus, this candidate reorganized the information into four overarching themes on a separate Word document. In discussion with the primary advisor, this candidate went to-and-fro across all the transcripts once more to clarify meaning, reword the themes and select applicable quotes that highlighted individuals' experiences and perspectives. Four rounds of revisions

in this manner were facilitated, until there was mutual agreement between both researchers on the accuracy and meaning of the final themes.

### *Qualitative Findings*

The final themes are outlined below. There are four in total.

***Theme One: Familiarity with DBT Shapes Appraisals of its Relevance and Implementation Decisions.*** While most participants could acknowledge that DBT has a strong evidence base for treating personality disorders, not everyone was familiar with its adaptations for treating other conditions. This meant that DBT was viewed as helpful for the stabilization of crisis and chaos but not the treatment of choice for milder psychiatric conditions, nor for clients in acute treatment settings or forensic settings. Nevertheless, interest in its application for treating trauma was growing, as indicated by three participants who reported that they typically worked with complex trauma using a non-DBT approach and were interested in or studying the Dialectical Behaviour Therapy for Complex Trauma (DBT-PTSD) or the Dialectical Behaviour Therapy Prolonged Exposure (DBT-PE) protocol.

Familiarity with DBT influenced whether stakeholders could see its relevance or applicability to their clinical work (although, in certain settings where manualized group programs were delivered, participants highlighted that they could not incorporate DBT-interventions even if these were applicable). Clinicians whose narratives indicated unfamiliarity with DBT, and who simultaneously reported a clear orientation towards another therapeutic modality (these were schema therapy, psychodynamic therapy, eye movement desensitization and reprocessing therapy or cognitive behavioural therapy [CBT]), held an impression that DBT was overly structured or over-focused on teaching skills. They were also unfamiliar with the main dialectic of validation and change in DBT, speaking more about the four core skills, and a few perceived DBT as pushing too much for change (i.e., through skills training). This was also the case with a participant who was hired to provided DBT as part of a stated job scope, but felt personally inclined towards another therapeutic orientation. As these participants valued flexibility in their practice, DBT appeared unattractive to them.

> Participant: … DBT's part of the CBT. I, I find people who like things quite structured like DBT. Yeah. Yes. Which may also explain why I don't really like DBT. I'm quite a flexible person so yeah. So- so yeah, like I do. Yeah. I think in general, like my colleagues who do

psychodynamic [therapy] also, generally quite flexible, quite uh, quite adaptable and then they don't, they don't even like CBT in general. Yeah. So I think like, liking structure, liking- like- there's a format, you know, there are steps um, the- the workbook and all that is super clear. There are worksheets, there are like- everything is given to you in a very, very structured manner. So I think people who like organization and like having a system seem to sit better with DBT.

At the therapist-client level, those with the least experience in DBT appreciated being able to share the skills (in the form of acronyms or terms e.g., 'Wise Mind') when they felt to a need to provide their client with something concrete or tangible. Their narratives indicated that sometimes, the DBT skills were not taught the way they were intended e.g., one participant observed that clients could not grasp mindfulness and described placing an overfocus on stillness, which was challenging for her client population of youths. Out of the 4 core DBT skills, interpersonal effectiveness was singled out as underused with local clients by over a third of participants for various reasons such as not being fully-trained, feeling time-pressured within the specific clinical setting to stop self-harm behaviours, clients not seeing its relevance because there were no negative consequences to their interpersonally ineffective behaviours and other forms of situational dependence:

Participant: ... first of all, I would say that I'm less familiar with interpersonal effectiveness in terms of the content of that skill training. But also, the- when I talk about people presenting with relationship issues, it may not be... it may be that there's something else going on in the family dynamic that's causing them stress. So, so their problem is not a skill-deficit problem. When we teach skills, it's often a skill-deficit problem, as it is about how do they manage their emotions around that, how do they manage um... uh, you know coping with or dealing with and, yeah. But I mean, there are some times where I do like assertiveness training. Or do some sort of- teaching conflict-resolution skills, or how do you bring up difficult subjects.

Interviewer: Okay. So the problem is really more like situational factors beyond their control, rather than 'look, you need to go in there and be more skilful, more effective'.

Participant: [Nods] I think so, yup.

One-fifth of participants spoke about the cultural relevance of these skills that they perceived

as ‘very Westernized’, maintaining that ‘that’s not how we talk here’ and that there were difficulties ‘adapting it to the particular culture and context’:

> Participant: Yeah. Maybe the term ‘assertiveness’ may be a bit Western. Because you don’t think of needing to be assertive in relationships, but you are more- you prioritize consensus and harmony in relationships more than being assertive. So maybe other terms like keeping clear, healthy boundaries with people, rather than terms like assertiveness may be more easy to understand.

There was less familiarity with phone coaching. Although everyone had heard of DBT skills and most had tried teaching at least one skill to a client, only one-third of the participants reported having provided between-session phone support to their clients; three individuals shared that this was a modified form of phone coaching and two clarified that they were not doing DBT. During interviews, many therapists reported being unwilling to provide phone coaching due to fears of intrusions on their personal life. This was despite their opinion that phone coaching was helpful in providing targeted, step-by-step assistance in real-time. There was a general fear of clients over-using or misusing phone coaching, although the minority who tried this DBT mode found it to be underutilized by clients in reality.

Familiarity also played out in how DBT-oriented therapists placed a high value on team consultation (one of the treatment modes of delivery), speaking about how it was a supportive or validating experience, while many other-oriented therapists did not show an in-depth understanding of how a DBT team functions. The latter initially equated this to their work in other types of staff teams (e.g., multi-disciplinary treatment teams), and some recognized that the culture of a DBT team was quite distinct after this mode of the therapy was explained to them. They then raised questions on how this would be facilitated in Singapore, where local practitioners were not exposed to a culture of mutual vulnerability in existing training and working environments. A majority of participants who had been part of or were currently in DBT teams reported a positive experience of feeling supported or developing friendships that allowed for vulnerable sharing within consultation meetings, while two others compared their experience in overseas and local DBT teams and found that expression of vulnerability in Singapore was lower. One of these therapists, when asked about how consultation

teams work in practice, had this to say:

> Participant: And sometimes, the emotional safety is a bit hard to establish as well, even though it's a close-knitted team in some sense. There is difficulty being completely honest sometimes. … Yeah, and showing vulnerability as well. Which, can be difficult when it's… even though it's supposed to be peer-level, sometimes it doesn't feel that way la. … I guess I worked in other cultures also. … I guess in comparison, there's definitely that… if you use DBT-terms, apparent competence, sometimes? Within the Asian population, even if I don't know something, I need to pretend that I know, because I fear that other people would judge me. … There's more pressure here to look competent. There's more pressure here to look- seem- look as if you know something. Or you cannot tell people that you don't know certain things, what would people think about you? So that level of vulnerability, it's not that high la.

Regardless of therapeutic orientation, multiple people pointed out the complexities of navigating a workplace hierarchy (discussed further in theme three) in the local culture. When asked about forming or running DBT consultation teams, they reflected on whether teams containing senior and junior staff could be psychologically safe. Responses from two different participants are provided below:

> Participant 1: … but I think groups that do have superiors and reporting officers within them would, might have a challenge within the Singaporean context where you don't want to talk too much about your vulnerabilities in front of your bosses that are going to perhaps, to assess you at the same time.
>
> Participant 2: I don't know if it's specific to Singapore, but certainly, one of the things that we tend to worry about is the evaluation either from our superiors or from our peers right, if it's a direct supervisor, and they're supposed to do your… your assessment of your year-end review, mid-year review, and all that. There's that sort of consciousness and… there's a fear that this person might not view me as a competent therapist and that might affect my grading, that might affect my promotion. I think that's a concern that a lot of therapists and certain Singaporean therapists or therapists working in Singapore might face. Um… I think, in terms of peers, it really depends on the culture of the organization. How competitive it is, or how

> accepting and welcoming and friendly it is. So for example, if people, if the culture of the organization values vulnerability and humility, uh… yeah. I mean, I think, Singaporean culture, I don't know [laughs].

***Theme Two: Clinicians with Intrinsic Motivation Require the Appropriate Exposure to Nurture it.*** There were various motivations for wanting to learn DBT. Firstly, DBT appealed to clinicians with an interest in personality disorders, with one person verbalizing intentions to establish career credentials in this area. Many of the clinicians started off learning DBT because they needed to 'expand' their therapist 'toolkit', and were especially concerned about how to help clients who emotionally dysregulate. Those who chose to use it more reflected on how they valued openness to new approaches, resonated with dialectical thinking and needed clear boundaries in their work with clients; the latter perhaps aligned well with DBT's recommendations for structuring the client's treatment environment. For one DBT-oriented therapist, the structure in DBT was essential in providing clarity for both therapist and client, because her practice setting necessitated time-limited therapy.

> Participant: … the structure of the approach, it kind of fits with my style because then it helps me to systematically understand what is expected of me, as well as the patient. Yeah, um, as compared to like maybe some other approaches, they might be a little bit more fluid. Yeah. So a bit more exploratory, which then I might, umm I'm okay, I can go with the flow, but then you know, then I can- I, I might deviate. I'm, I'm worried I will deviate from like the, the agenda. ...

Early-career therapists spoke about searching for a treatment method that would help them to increase their confidence and alleviate anxieties around working with challenging clients such as individuals with personality disorders. Whether they took up DBT or not seemed to have depended on opportunity e.g., for receiving training. One participant highlighted that local workshops on DBT were at an introductory-level and focused mainly on skills. She opined that such trainings were repetitive, with no other ways to deepen her understanding of delivering other parts of such a comprehensive treatment. Having early access to training, even during postgraduate studies, could then be a key implementation facilitator that is often missing in the local context. Therapy trainees and qualified

therapists reported a tendency to follow a clinical supervisors' training and approach, which meant that they were only exposed further to DBT if their supervisor was trained and/or advocating for its use. People with non-DBT-trained supervisors thus tended to follow other therapeutic approaches. This was confirmed by a member check from a participant who was relatively early in career development, who highlighted that local postgraduate training programs for clinical psychology focused on CBT as a 'mainstay' therapy; supervisors did not teach trainees DBT and self-reading on DBT did not instil confidence for using it. Unsurprisingly, DBT was not attractive to a later-stage therapist who had already developed their own clinical style or grounded themselves in other therapy modalities.

> Participant: … 'Cause how have I acquired schema and dynamic [therapies]? It's just 'cause it's around what. My, my, my… [name of hospital] is funding regular schema group supervision, 'cause they wanted to. I tried to get EFT, don't want, tried to get ACT, don't want, so that's why I got trained in it. Then got dynamic team, that's why I got trained in it. I basically got trained in what's available. So if DBT was around, I confirm would be using more of it now.
>
> Interviewer: Okay. So there is that interest, it's just that opportunities for learning it are quite limited. And... I'm hearing [that there were] no opportunities for supervision also. If there was something like a DBT supervision going on, for example a group, would you then use more of this therapy, you think?
>
> Participant: By now, no. Because I already have two [gestures two fingers] orientations for [treating] PD [personality disorders]. But if I was just entering [the field], then yeah.

Further training and having avenues for continued practice, together with ongoing supervision, were also identified as missing facilitators as many local practitioners were new to DBT in general, and some reported being fearful of using DBT without the proper training. Even therapists who attended brief workshops in DBT were unfamiliar with basic information such as the DBT modes. Among a few who underwent further training, one person reported challenges in delivering individual

DBT competently due to homogeneity in client presentations:

> Participant: Yeah, I find it very hard to adhere to it 100%. I think it's a case-by-case basis, because even though it's a structured, manualized treatment, um… it's not one-size-fits-all.

Nevertheless, this person and the others who were DBT-trained acknowledged growing in confidence to practice the therapy over time:

> Participant 1: I think, I think my view of DBT as a modality has probably evolved over the years, whereas, um whereby like, probably as a student, not knowing DBT- um, it's just something like oh, this is a good thing to learn, this is something that would hopefully work for patients - to starting work, not having DBT skills and just seeing the types of patients that I see, um, using other modalities and feeling sometimes stuck. Then, getting DBT-trained, trying it out with patients, oh it's working, good... but also along the way, um, learning to modify a little bit more, having that confidence I guess? So, I think the confidence comes with the number of years of experience and comes with the opportunity to get more in touch with DBT, I guess.
>
> Participant 2: I think that was the suicidal and self-harming clients that created the most anxiety in me as a therapist, as well. Right. And- trying to, wanting to make sure that they keep safe and that they have adaptive ways of coping with distress. So I think my, my own anxiety about how to help the client was a primary early motivator to adopt it, yeah. … It's definitely different, you know, uh, when you practice as a therapist longer. You're kind of familiar with the different options.

***Theme Three: DBT is in early developmental stages in Singapore and needs resources to grow.*** Participants perceived that there was demand for DBT services from clients and other stakeholders such as referrers, trainees or community partners. However, they found there was a lack of trained DBT providers to meet these needs. According to participants, demand and supply also varied across practice settings, and at times did not seem aligned i.e., settings who offered DBT did not find high take-up or high receptivity from clients, while settings with a high demand were not able to provide DBT-interventions to a level that would meet clients' needs.

A few participants highlighted that there is no standard DBT program available in Singapore,

and none of the DBT-oriented therapists reported a purist approach to the therapy:

> Participant: Yeah… I mean I would certainly consider myself as doing DBT-informed psychotherapy. I won't say I'm a DBT therapist for the sheer fact that I'm not accredited. Um. Although on my own, if you ask about like, my professional identity, I do feel that this is something I want to develop further. Yeah. I won't say that I am a DBT therapist, because I am not.

None of these DBT-oriented therapists have been accredited in DBT due to roadblocks such as being unable to further their training, although two persons who were currently not in active programs or teams verbalized hopes to pursue eventual accreditation. There was a hesitance to over-specialize in any one therapy among some participants because of a belief that it might limit career options given that there are no DBT-specific treatment centres in Singapore, while two persons opined that it was a 'selling point' when searching for a new job or for private practices who wished to advertise their services respectively. The tendency was for many clinicians to integrate DBT skills into their current practice, as was the case for a referrer who provided pharmacotherapy but whose clients were unable to access psychotherapy (e.g., due to cost or long waiting times). Where DBT groups were provided, these were adapted and offered as an adjunctive treatment option – again, this could be because the intensive training needed to start providing standard DBT was not accessible.

A chicken-and-egg problem exists in the area of securing resources to sustain a DBT program over time. Many participants practicing in public settings recommended a systematic implementation of any new service, necessitating formal research programs as upper management or government ministries would typically pose questions about clinical and cost effectiveness. However, without protected time to conduct DBT work or program evaluation (often with clinicians doing DBT on top of their core clinical work), it was reported that such a systematic process was difficult to pioneer.

> Participant: Umm… I think in Singapore, when you try to want to implement anything new, it's always down to finding the resource… and uh… I think it's quite hard though, to find the resource. If you say I want to do this as an individual, okay, that's quite easy to start. I just give you a clinic, off you go, you know, as long as you produce results. But if you're talking about setting up a team – a lot more resources needs to come in, like finding the rooms,

> finding a few people, carving out time… it's much more resource-intensive, um… and most of the money still comes from *ah gong* [local slang for 'grandfather' borrowed from the Hokkien dialect; reference to Ministry of Health; MOH]. So… um, quite a bit of paperwork to do, to convince the MOH to come up with those money. Yeah so I'll say it's much easier to start off individual services, but if you want to start off like a team, and you're going to ask for money for that, a considerable amount of work has to go in, to convince the government to park some money in that.

In addition, one participant raised concerns about researching DBT as there were no existing research therapists who were trained to the practice standards that would be consistent with overseas studies on DBT. In line with this, multiple participants recognized that DBT adherence was not measured, even in more than one ongoing research program. Furthermore, others were not familiar with such scales for measuring adherence, possibly because their organization placed more emphasis on tracking symptomatic changes in clients or they did not practice pure DBT.

> Participant 1: Okay, I'm not very familiar with DBT. I don't know whether they have fidelity scales, but I assume they would. Yeah. So. Uh, I think fidelity in the in my organization is really like self-directed, I feel, yeah.
>
> Participant 2: Actually I welcome any kind of evaluation to assess feedback for clinical practice. Um, but the only concern I have now is I don't feel like I'm administering pure CBT or pure DBT, 'cause a lot of the time, it's a lot of eclectic work that's done. Um, so… ah… so that's why, the probably why also I don't look and scrutinize whether I'm… I'm… there's fidelity to a particular model at the moment.

Another participant observed that membership in overseas DBT teams comprised different disciplines, whereas the therapy was psychologist-driven in Singapore possibly because it is in its earliest implementation stages. Participants, the majority of whom were psychologists, expressed the view that buy-in is needed across various professional groups, and especially from medical doctors in the public healthcare setting. Nearly one-third of participants reinforced a need for a person with 'clout' in the organization to champion DBT, with some speaking about how the reporting structure in their organizations meant that doctors and psychiatrists held the highest 'decision-making power' or

had purview over the work of psychologists who functioned as therapy-providers.

> Participant 2: Unfortunately, many of our bosses and stakeholders are the psychiatrists. So even in my program, the program lead is a psychiatrist. Yeah. So, I guess this kind of highlights also the discrepancy, because the psychologists, we advocate, we think that this is very helpful, we should do that – yeah, but I guess when in that process or journey, it may not be beneficial per se to the psychiatrist's role at work. Although I beg to differ, because if they are able to understand the full model and subscribe to the way and the treatment hierarchy and targets, technically speaking, it can be very beneficial for their work as well. So what I believe is more like perhaps, they still don't really get the opportunity to, to learn or be informed about potential benefits of DBT for them. It would be nice if many of the trainers… uh… in DBT, can come from a more psychiatric background. Yeah. Yeah. … Or a psychiatrist can teach DBT. I think that would change the entire picture in Singapore.
>
> Participant 2: I think really need someone with the clout to push for it. [Laughs] An influential figure… I don't know how to put it *ah*. …

Two participants who were working in an active DBT program added that many other professions may not have the capacity for co-managing cases in a DBT-adherent manner, especially if therapy is not part of the main job scope:

> Participant 1: … Because a lot of these patients have a multidisciplinary team, so it's good to – even nurses – it's good to know how they can handle patients in the ward. Yeah. But I guess it's up to, up to – they have time constraints. If they have to learn other things as a priority because it's something they need to do their job, then learning DBT would be of less priority.
>
> Participant 2: Yeah, and then from a nursing perspective, especially if the patient is, I mean I'm talking about inpatient setting. Yeah, where the nurse, the profession requires them to not take care of just one person in front of them but like a lot of people, they don't have the capacity to um actually do this. Yeah, they would want to- their main aim is kind of to problem-solve. …

This theme was met with the strongest agreement during member checks, with one participant putting forth an opinion that 'the public hospital setting has many patients that would benefit from a

DBT approach, but it is also the place without sufficient resources to set it up'. Another participant emphasized that psychiatrists and medical doctors are regarded as primary care providers in public healthcare systems who were responsible for finalizing overall treatment plans for clients, and thus may not always incorporate DBT-based recommendations from a therapist (e.g., behaviour plans).

***Theme Four: DBT is only a Small Part of the National Mental Health Landscape.*** The majority of DBT-interventions in Singapore were reported to be bottom-up initiatives, where practitioners started out learning and delivering the treatment on an individual basis or a small-scale because they wanted to better help their clients. Others who started in DBT based on a top-down directive were more cognizant of the benefits of DBT for the organization, with a focus on reducing crisis behaviours and emergency services use. At the same time, regulation of mental health providers has not yet started to play a big role in the national treatment context. There were mixed opinions on how potential regulation might impact on DBT implementation – it could pose a barrier to entry and reduce the number of clinicians taking up DBT, have no effect, or ensure ethical and competent DBT practice so that individuals who were not trained could not misrepresent themselves (e.g., marketing for a private practice). A handful highlighted that hospital and government-linked organizations had their own internal regulatory systems for practitioners, and these did not necessitate that staff train in DBT – again, they pointed to how learning DBT was due to intrinsic reasons.

The majority of the participants based in public healthcare referred to an internalized pressure from the system to deliver rapid results in treatment, measured by discharge rates or waiting time for referrals. A member check made this more explicit by elaborating that at times, middle management, under stress themselves, placed pressures on staff to close existing treatment cases because waitlisting new clients were not allowed; the participant stated that neither DBT nor CBT could be adequately provided in such situations. Although many participants opined that the public systems rather than private practices were a more suitable setting for implementation of DBT, perhaps one of the largest barriers is that the demand for shorter-term therapy or a 'quick fix' is not aligned with the treatment duration prescribed by DBT:

> Participant 1: … I mean practically speaking, even though we are like helping kind of profession and, and- but the thing is at the end of the day you do want people to get well

quickly and then discharge them quickly, uh you know with like uh minimal resources. I would say that would be the ideal. Yeah, so on the thing about DBT is when you are implementing it- um when you first start to implement it, then you realize that there's so many things that are, that are required to be done. So the manpower because like I said, it's very intensive, so you actually do need a dedicated team, and the thing is the current team doesn't have that luxury. … we don't have the luxury to choose like 'ohh, we only want to take in patients who can do DBT' you see. Yeah so that means that we will have to balance our time when we see patients and then practice with them individually. …

Participant 2: … having said that, private practice might have more flexibility in terms of deciding what is the dosage the patient needs from therapy. So, there's probably no limit in terms of the number of sessions, how long they can see patients, how frequently they can see, while in public hospital, we always have to think about the caseload – have to discharge, so. … While in our department, we don't have the luxury of doing it, because it's expected that patients keep coming and we are supposed to you know, take the same number of patients every week, and discharge faster. … Yeah, so I think their expectations for patients to get better or discharge, right… might be quite different. …

It was acknowledged that there were often different considerations voiced by administrators and clinicians, with one participant identifying an 'impasse' when it came to resource distribution, describing how an administrator might perceive DBT as work that someone chose to do on top of their main job tasks because staff are not hired into DBT teams or programs. This meant that provisions could not be made if other work was compromised in service of doing DBT. Many reflected aloud on these role conflicts between administrators and clinicians, and an administrator described the inability to support staff's training requests for DBT as funding sources often laid out strict criteria that limited attendance to training workshops held locally, but not overseas. Another example was shared by a clinician:

Participant: I think, I think to me, I think there are, at least my own personal experience is I think there are resources and I, I find, to some extent, which I, I can get why people think it may be unfair because I think everybody, is a very human thing, that if I run a project I would

> want all the best resources for my project and everybody wants it. But I think what everybody doesn't know is everybody's competing for the same pot and there's only limited resources that can go and then unfortunately the, the poor manager or leader has to be the one telling which team, yes, and which team no. … And it's just a scarcity thing.

For some organizations, DBT was only one small part of a bigger picture e.g., policymaking on a national level, that did not meet higher-level needs sufficiently for it to be resourced:

> Participant: [Pause] I think… if let's say I'm thinking about implementing a new kind of treatment, it is a small part of my work. It's just a small portion, because I also look at treatment services for this whole population as a whole, not just in my setting, but in the whole of Singapore. Yeah. So for me, it is just a small part, if it's to implement on our side.

As part of a member check, a novel idea arose that a system's unfamiliarity with DBT, and not only the practitioners' level of familiarity, could pose a main barrier to implementation. Similar to how an individual therapist would not choose a therapy approach that they know little about, healthcare systems cannot support a new therapy that is foreign to them. If a system is more familiar with DBT, they might then be more inclined to fund it.

Ultimately, DBT is part of a range of many therapies that are available in the country. Participants shared about how the biosocial theory helped their clients feel more understood and validated, but individual clients' responses to specific interventions depended on factors such as age (e.g., participants reported different receptiveness to chain analysis depending on clients' ages), expectations and motivation levels (e.g., multiple participants spoke about clients who wanted distress tolerance skills as short-term solutions), their own resources (e.g., time; some participants reported that homework noncompletion rates were high due to clients' lack of time between sessions) and even treatment settings (e.g., one participant highlighted that TIPP skills were not feasible to practice in the forensic setting due to restricted access to physical materials).

**Integration and Discussion**

The current study integrates both quantitative and qualitative data through connecting (i.e., sampling interview participants from those who completed the survey) and building (where the development of an interview schedule was informed by the data collected in the survey) at the

methods level (Fetters et al., 2013). This section focuses on the interpretation and reporting level and will be presented via a weaving narrative. Where relevant, the qualitative data may be mapped onto key quantitative findings. The answer to the first research question regarding the value of implementing DBT lies largely in the qualitative data, while both types of data can be consulted to answer the second research question on barriers to DBT implementation.

The status of implementation in the country is that the therapy is relatively new and seems to appeal more to mental health practitioners who see its relevance to their work. At entry-level, participants found the DBT skills to be valuable, leading majority of implementers to integrate these into their non-DBT therapy. A few attempted or were making plans to start DBT skills groups, and a minority were currently running these. Participants' narratives indicated less familiarity with the other modes of DBT. Even though some found phone coaching valuable, they were themselves not willing to provide it. Some found the experience of or at least the idea of a consultation team valuable, but many participants (both in a DBT team and not in a team) highlighted the likely challenges of building and protecting a team's culture within the hierarchical complexities of their organization, which will be discussed later. Few participants spoke about the value of individual DBT, perhaps because majority were not implementing this or yet trained to do so.

Apart from the recognizing the value in the four modes, some participants found the therapy valuable for alleviating their own anxiety in working with complex cases and personality pathology. In our quantitative examination of individual characteristics (a sub-element of context in the DBT implementation model; Toms et al., 2019) it was found that the number of years of experience in DBT predicted service providers' view of themselves as becoming more efficacious and influential. Despite the challenges of learning the therapy, this observation was affirmed in theme two, where participants reflected how they grew in confidence to practice DBT over time. DBT was found to equip practitioners with new tools of the therapy trade, regardless of whether they delivered primarily DBT or not. The minority who voiced a keen interest in personality disorders found DBT to be especially valuable, although others pointed out that there were other brands of therapy for working with this condition as well.

In studying the various domains of the sub-element of Context in Toms and colleague's DBT implementation framework (2019), several barriers were identified. With theme four highlighting that many local DBT implementation efforts were moving in a ground-up direction, it may be helpful to keep in mind that the barriers outlined below may not be as applicable to any organization that is undergoing top-down directives to implement DBT. Several barriers are mapped out in Table 20.

**Table 20**

*Summary of Barriers Identified from Interview Findings that Built on Survey Results*

| Quantitative Results | Corresponding Qualitative Findings |
|---|---|
| **Culture**<br>Individuals in active DBT programs held a poorer perception of leadership culture compared to individuals who were not in programs; similar for clinicians compared to administrators. At the same time, DBT experience tended to predict improved perceptions of leadership culture and staff culture. | The complexities of a workplace hierarchy (based on seniority, medical training) was highlighted. More than one person in an active program spoke about a cultural norm of needing to appear competent and invulnerable. |
| **Leadership**<br>Individuals in active DBT programs held a poorer perception that senior leadership provided effective management support for implementation compared to individuals who were not in programs. At the same time, clinicians tended to also hold a poorer view of the leadership behaviour than administrators. | This may overlap with the 'Facilitative Administrative Supports' sub-element of context. Narratives of participants indicate that perceptions of leadership support for DBT implementation may be experienced in a tangible manner i.e., whether practice resources were provided or not. The differences in views of clinicians and that of administrators are discussed further in the 'Facilitative Administrative Supports' section. |
| **Evaluation**<br>Level of involvement in DBT tended to negatively predict the use of all-rounded feedback and evaluation methods. Individuals in active DBT programs and tended to perceive that there was less of such feedback. | Participants responded to a direct interview question about evaluation, but no conclusive subtheme was generated in this area. Again, it was noted that individuals in active DBT programs, and who were also most likely to be highly involved in any DBT, appeared to hold the most negative perceptions, consistent with the other sub-elements of context. |
| **Suitability and Goal Fit**<br>DBT experience negatively predicted perceptions that clinical or DBT programs needed additional guidance. At the same time, clinicians tended to perceive needing more training for working with clients than administrators. | It was not DBT experience per se, but familiarity with DBT that informed whether the intervention would be implemented or not – both at the individual and at the systems level. This may also overlap with the 'Individual Characteristics' sub-element of context. Clinicians commented on the difficulties with obtaining DBT training, and an administrator commented on the challenges of obtaining funds to send staff for training if it was not conducted locally. |

***(continued on p.164)***

**Table 20 (Continued)**

| Quantitative Results | Corresponding Qualitative Findings |
|---|---|
| **Individual Characteristics**<br>Clinicians tended to perceive having a lower influence on other staff than administrators. Psychologists tended to view DBT as more important for job security compared to psychiatrists. | Psychologists alluded to not having as much 'clout' in public healthcare systems and the need for psychiatrists to champion DBT implementation. Some psychologists shared about DBT being a good 'selling point' in employment searches or advertising of services for private practices. |
| **Facilitative Administrative Supports**<br>Individuals in active DBT programs perceived having less support in terms of general resources than individuals who were not in programs. At the same time, they tended to perceive that training was less prioritized for them or unavailable to them (this seemed to be confirmed by actual ratings of attendance in training workshops during the past one year), and that they had less access to and usage of the internet at work. Clinicians perceived having less access to the internet at work than administrators. At the same time, they tended to perceive having lower resources to support change. Lastly, DBT experience predicted more training exposure and training utilization at an individual level. | Theme Three suggests that DBT needs resources to grow in general, and perhaps this is most acutely felt by participants actively trying to implement a DBT program. Participants who were implementing less DBT spoke about difficulties with accessing DBT training, but not necessarily training in other types of therapy as they listed a range of modalities that they have been trained in. This would be in contrast with DBT practitioners who faced roadblocks to their training (and perhaps, more so for individuals in active DBT programs – having completed basic or intensive training in DBT, they could not easily access more advanced training since local workshops in DBT were at an introductory level). There were differences between clinicians' and administrators' considerations regarding resource distribution due to role conflicts. Theme Four expounds further on this, where some administrators were required to further consider macro-objectives beyond the organization (e.g., national landscapes). The 'chicken-and-egg' problem was outlined i.e., having to do more to justify the need for resources that are being sought to support what is needed to be done, perpetuating clinicians' perceptions of being under-resourced. Lastly, multiple participants shared about their ongoing utilization of DBT over time, and how they continued to grow while practicing the therapy. |
| **System Interventions**<br>Clinicians reported less clarity about program goals and objectives than administrators, while individuals in active DBT programs tended towards this than their counterparts outside of any programs. Clinicians and DBT program / team members also perceived poorer communication within the organization than administrators and non-members respectively. Individuals in active DBT programs additionally held perceptions of other staff as less cooperative. Both clinicians and DBT program / team members tended to hold a less positive attitude towards change (including less ease in implementing new ideas) than administrators and non-members respectively. Increasing DBT experience predicted improved views about the organizational climate being able to promote change (general clinical experience also tended towards this pattern). At the same time, DBT experience tended to predict increases in the perceptions of having more autonomy and better communication in the organization. | Almost all practitioners were intrinsically motivated to learn and use DBT to help their clients. This was a personal objective but may not have translated into clarity of the team's and organization's objectives. Individuals in active DBT programs report some difficulties with obtaining buy-in from other colleagues, although it was not fully clear whether there were other aspects about working together with colleagues that negatively affected perceptions of staff cohesion and communication. The response of one participant that stated how everyone was competing for the same pool of resources may shed some light into this as well, as staff teams of different programs are inadvertently pitted against each other. Inferences about the influence of DBT experience will be discussed below. |

In reconciling the differences between the quantitative patterns, where DBT experience predicted positive outcomes on a few sub-elements of context but being part of an active DBT program or team was negatively correlated with multiple outcomes (this was particularly visible with regard to the sub-elements of leadership and culture, both of which can influence each other; Toms et al., 2019), we turn to consider the larger, overall context and the state of DBT implementation in the country for a synthesis. For individuals who have been practicing the therapy for longer, i.e., having more experience with DBT, there seemed to be beneficial effects. It is plausible that being in the earliest stages of implementation is experienced as the most difficult, with participants in active DBT programs alluding to an upward climb as part of the process. Having to substantiate clear reasons for a new service, develop clear objectives for it, persuade or influence others for its adoption, obtain the necessary resources to support it are some of the earliest steps towards implementing change; however, sustaining DBT teams, programs and services continue to be a challenge in itself as experts have drawn out a 'survival curve' for DBT programs that cautioned against a heightened risk for closure two- and five-years post-training (Swales et al., 2012). The present findings seem to offer an explanation on why survival is challenging. A mismatch between the program's operating philosophy and needs with those of the organization means ongoing efforts to justify the program's operational needs for sustainability, where integration into the larger system might be key for its survival. Not having someone of sufficient clout to support the program may increase the survival risk.

From this study, we learnt that some workplaces still may be largely unfamiliar with the therapy and therefore less willing to facilitate its implementation. This is directly related to organizational pre-treatment, a concept coined by Swales (2010), who believed that, similar to how clients are prepared to start a course of DBT (this is referred to in DBT as the commitment or pre-treatment stage), organizations are faced with a parallel phase that precedes implementation wherein the organization needs preparation by assessing organizational suitability or the readiness of the organization to implement DBT, orienting the system, gaining a series of commitments from the organization to implement the treatment program and for necessary changes in working practices, etc.

Limitations to this study include self-sampling of participants, as the study advertisements were most likely to appeal to individuals with at least some interest in learning DBT, doing DBT and

even promoting its spread. This means that the study may not have fully captured the perspectives of individuals who were more disinterested in the therapy approach, although there were a few participants who seemed to fit this profile based on their responses (e.g., directly identifying a different primary therapeutic orientation). The study sample did not include as many administrators as would have been ideal, although another possibility would be to look at direct DBT providers and auxiliary DBT providers (e.g., administrators, referrers, practitioners who were co-managing cases with DBT therapists, nursing staff caring for hospitalized patients, and so on). This was considered but could not be carried out after studying the demographic information in our survey, as the distribution of participants showed that the highest proportion fell into the group that was 'practicing DBT individually / without a team' (refer to Figure 6) and were thus directly providing the therapy, albeit in a modified manner.

The present research focuses on one main sub-element out of a larger implementation framework that spans multiple aspects. Although several barriers have been identified, this does not mean that DBT cannot be implemented. Rather than eliminating 'contextual confounders', May et al. (2016) proposed a different way of thinking about implementation barriers as 'normal conditions' that DBT must be integrated into, in order to be translated into a new system. Asking suitable questions of practitioners and organizations to determine how the treatment can be best provided and / or utilized may be one way forward. For example, would practicing as a generalist allow clients to access to therapies that they might not otherwise receive? Would continuing to adapt DBT programs to fit the contexts these are situated in be more effective than adopting standard DBT without as much consideration for the unique setting and contextual factors? This remains to be seen as DBT implementation is predicted to scale in the coming years.

# Chapter 6: Discussion

In the past decade, various efforts have been made to set up adapted Dialectical Behaviour Therapy (DBT) programs in Singapore, with majority of these programs closing after a few years. DBT can be a complex treatment to implement (King et al., 2018) and no standard DBT program is yet available in the country. Since 2020, an adapted Dialectical Behaviour Therapy (DBT) program has been implemented in a psychiatric hospital, after pilot studies showed a promising impact on symptom change. As this coincided with the COVID-19 pandemic, format changes (e.g., from in-person to online skills training, from a closed- to open-format group) were made. The outcomes and ongoing implementation of this intervention was the focus of the current research.

In this chapter, I integrate the findings across the three studies that form this thesis. The research aimed to investigate both the effectiveness of adapting DBT as a transdiagnostic treatment in Singapore and the factors related to the context in which this treatment is being implemented. The latter was based on a preliminary DBT implementation framework proposed by Toms et al. (2019), which defined four key elements of Context, Evidence, Facilitation and DBT.

To achieve these aims, Study 1 had research questions about how effective an adapted DBT program was in reducing difficulties with emotion regulation and common of symptoms of depression, anxiety and borderline personality disorder (BPD) in a psychiatric outpatient sample, as well as in improving self-esteem and other coping. Study 2's research question was about the aspects of DBT that clients who underwent the program thought influenced the outcomes of their therapy. Study 3, which sampled service or therapy providers instead of clients, posed research questions related to the perceived value of implementing DBT in their unique clinical settings and understanding any contextual barriers to DBT implementation.

## Key Findings

### *Study 1 – Evaluating the Effectiveness of Dialectical Behaviour Therapy as a Transdiagnostic Treatment in a Real-World Setting*

Study 1 employed a quantitative method and tracked participants' ($N$ = 32; recruited over multiple runs of the DBT program) therapy outcomes across time. For primary outcome measures, there were a total of 11 assessment points every three weeks. For secondary outcome measures, four

assessment points at baseline, pre-intervention, post-intervention and three-month follow-up (Times 1, 3, 7 and 11 respectively) were used. Linear mixed model analyses with a random intercept were conducted to investigate the fixed effect of time for all outcome measures. Treatment completion was additionally fitted as a fixed effect for the primary outcomes. These analyses were repeated with a subsample of data completers ($n$ = 21) and treatment completers ($n$ = 25). The latter was only possible with secondary outcomes that did not model for treatment completion.

There was a significant main effect of treatment completion on difficulties in emotion regulation but not the DASS-21 scales, which remained unchanged in the total sample and subsample analyses. Closer examination of DERS subscales showed that there were significant main effects of time on difficulty engaging in goal-direct behaviour, impulse control difficulties and limited access to emotion regulation strategies in the full sample. Interestingly, examination of data completers-only painted a different picture, with a significant main effect of treatment completion on nonacceptance of emotional responses and lack of emotional clarity.

Significant main effects of time were found on all primary outcomes of difficulties in emotion regulation, depression, anxiety and stress as early as Time 4 or after the first DBT skills module, which was maintained until the final follow-up. It is worth noting that anxiety already showed a significant main effect of time even at pre-treatment (Time 2 and 3) in the total sample, but not at Time 3 in the subsample of data completers. Thus, it is possible that individual therapy (which was provided even prior to participants starting on DBT group skills training) already influenced anxiety levels. Large effect sizes at the final time point were evident for all primary outcome measures. Among the DERS subscales, it was shown that emotion regulation difficulties arising from a lack of emotional awareness showed more gradual improvements, with a significant main effect of time after the third skills module (Time 6), as compared to the other subscales that followed a similar pattern to the DERS total scale. This finding was consistent in analyses conducted with the total sample and with data completers.

The linear mixed model analyses also showed significant main effects of time in the desired directions in all secondary outcomes of borderline symptoms, interpersonal difficulties, internalized shame, general self-esteem, DBT ways of coping (skills use and dysfunctional coping) and

mindfulness use in the total sample. For all scales, this effect was visible by post-intervention and sustained at follow-up assessments, except the subscales of self-esteem (as measured by the ISS) and dysfunctional coping by blaming others (as measured by the DBT-WCCL). For these two subscales, the main effect of time reached significance only at the follow-up, suggesting that changes in these areas took place more slowly. When examining participants with complete data only, significance on these same two subscales disappeared, and there were also differences in measures of dysphoria and intrusions (both measured by the BSL-95). BSL-95 Dysphoria achieved significance only at follow-up, while BSL-95 Intrusions showed a significant main effect of time at post-intervention that lost significance at follow-up. When examining treatment completers-only, all secondary outcome measures showed significant main effects of time by post-intervention except for general well-being, self-esteem, and general dysfunctional coping (as measured by the BSL-95, ISS and DBT-WCCL respectively), all of which attained significance by the follow-up assessment.

***Study 2 – 'Practice Makes Progress': Healing Through Dialectical Behaviour Therapy***

The second study utilized a qualitative method and recruited participants across different iterations of the DBT program ($N = 26$). Although all of them underwent online skills training (the version of the program after the onset of the COVID-19 pandemic), different factors may have influenced participants' experiences, such as whether they received DBT or non-DBT individual therapy, accessed phone coaching, or attending a closed or open-format skills training group. Individuals who dropped out of DBT also participated, although they were a minority in the study sample. Reflexive thematic analysis was conducted on the data collected from individual interviews, which generate seven themes: (1) a need for clarity in therapy commitments and expectations about the course of therapy; (2) finding the skills group useful but busy as it felt insufficient and rushed; (3) navigating a shared space in group was experienced as complex but beneficial; (4) the reciprocity between group and individual therapy; (5) phone coaching was underutilized for a multitude of reasons; (6) skills being valuable and requiring continuity in practice; (7) changes in skilfulness. Multiple subthemes were also presented in Chapter 4.

According to participants, DBT skills were seen as valuable especially when there was a direct relevance to someone's personal situation, and skills training was the most salient among the four

DBT modes. Their narratives indicated that all individual therapists, whether trained in DBT or not, appeared to align their sessions to support skills learning and practice throughout the three-month program. The importance of therapeutic processes in addition to the learning of skills were highlighted across some of these themes, such as the role of group cohesiveness (including a sense of belonging) and the therapeutic alliance, as well as instillation of hope. There was a general consensus that skills use needed to be sustained even after the program, and many participants even continued to reference their printed therapy materials. However, some reported difficulties with independent use of DBT skills after structured practice was removed with the ending of the DBT program, especially amidst crises. As they also felt that content in the program was packed, many participants hoped for more DBT.

***Study 3 – A 'Chicken-and-Egg' Paradox: Understanding Service Providers' Experiences with Dialectical Behaviour Therapy Implementation***

Using a mixed-methods sequential explanatory design, Study 3 examined service providers' ($N$ = 21) experiences with implementing DBT in their local clinical settings thus far. Therapy practitioners who currently implement, previously implemented or have contemplated implementing DBT in Singapore were recruited. In the first phase of the study, quantitative data that measured sub-elements related to Context (Toms et al., 2019) were collected via an anonymized online survey. The quantitative analysis guided data collection in a second, qualitative phase, where opt-in, semi-structured interviews ($n$ = 15) were conducted to explore practitioners' views of the processes involved in establishing DBT programs in Singapore.

Linear regression analyses showed that years of DBT experience significantly and negatively predicted that programs needed additional guidance, and significantly predicted perceptions that the organizational climate encouraged novel treatment ideas and changes. Years of clinical experience significantly predicted perceptions that the organization was conductive for change, while one's level of involvement in DBT significantly negatively predicted the perception of adequate methods of evaluation (e.g., clinical outcomes or staff performance) and feedback. Mann-Whitney U tests on between-group differences found that at clinicians' perceptions significantly differed from that of administrators' in that they viewed themselves as having less access to the Internet at work, having

less understanding about program goals and objectives, and poorer communication within the organization. Compared to participants who were not part of a DBT program, Mann-Whitney U tests showed that those in active programs showed significantly poorer perceptions of: the overall context's conduciveness for implementation, staff working together, their organization's or agency's leadership culture, the senior leadership's success at providing effective support for implementation and practical support in terms of resources.

Qualitative data was analysed using Framework Analysis and yielded four themes, which were: 1) familiarity with DBT shapes appraisals of its relevance and implementation decisions; 2) clinicians with intrinsic motivation require the appropriate exposure to nurture it; 3) DBT is in early developmental stages in Singapore and needs resources to grow; 4) DBT is only a small part of the national mental health landscape. Following a member check of the themes, quantitative and qualitative data were integrated.

It was found that many practitioners found the four modes of DBT to be valuable but were most familiar with DBT skills and less so with other parts of the therapy. This was especially the case for early-practicing therapists who tended to turn to teaching of skills to allay their own anxieties when working with complex cases. Majority of the participants delivered skills training in piecemeal, often integrating it into their individual practice instead of distinguishing skills training sessions from individual therapy sessions. They spoke about challenges with implementing the other modes, which was largely attributed to a lack of resources in the workplace, notably manpower and time. They described a conundrum of needing to demonstrate evidence that supported the new therapy in order to obtain resources to establish it, yet first requiring these resources in order to conduct research and generate such evidence. Other implementation barriers were identified and mapped onto the sub-elements of Context, which were: complexities of a workplace hierarchy, low familiarity with DBT at the therapist and systems level (partially due to limited access to DBT training, the need for an appropriate and influential champion for DBT; and along with this, for buy-in from other staff members especially when based in a public healthcare institution. Despite the barriers, participants were highly intrinsically motivated to learn it, and several of them reflected on how they grew in terms of confidence and competence in working with their clients as they used the therapy. It is likely that

the stage of implementation largely influenced participants' responses on the quantitative questionnaires, and that the need for resources (also as a tangible, direct experience of being supported by the organizational leadership) was most acutely felt by active implementers.

**Integration of Results**

In relation to the research question about the effectiveness of the adapted DBT program, participants in Study 1 showed significant reductions on difficulties in emotion regulation, depression, anxiety, stress, borderline symptoms and significant increases in general self-esteem (as measured by the RSES) and other skills use including mindfulness (as measured by the DBT-WCCL DSS scale and FMI respectively). Results on self-esteem measured by the ISS and dysfunctional coping by blaming others were found to be less robust, with no significant changes over time after analyses were re-run using only cases with complete data. The data completers-only analyses also revealed that participants' self-ratings of certain borderline personality symptoms differed to that of the total sample – dysphoria showed longer-term improvements while reductions in intrusions were significant only at post-intervention but not in the longer-term.

Study 2 answered its research question on the components of DBT that affected clients' therapy outcomes by bringing to light both the helpful and less helpful aspects of the adapted DBT program, according to service users. The former including undergoing a shared learning experience that instilled hope, gaining a repertoire of useful skills, being able to then apply the skills to personal situations, etc. The latter included some insight into the costs of adaptations to standard DBT, which resulted in the skills group being crammed, or clients underutilizing phone coaching (e.g., due to the uncertainty of who would be on the line, unlike in standard DBT where clients would predictably reach their individual therapist). In terms of changes in skilfulness, there was a dialectic inherent in how participants found that while they themselves had changed (having become more regulated by being more self-aware and less reactive), they were unable to change their environment and others around them. This meant that their difficulties sometimes persisted despite using new skills.

In Study 3, the first research question on understanding the value of implementing DBT was addressed by service providers who outlined the perceived value of each mode, and many voiced having internal motivation to learn or use it. In answering the second research question regarding the

contextual barriers to DBT implementation, these participants also shared insights into important organization-level barriers to implementation that posed challenges to those looking to develop the state of DBT services in the country.

To my best knowledge, this is the first study that has closely tracked participants' progress throughout the duration of their DBT program, including capturing outcomes with the completion of each skills module. Since I was interested in the use of DBT as a transdiagnostic treatment for problems of emotion regulation, the primary outcome in Study 1 was difficulties in emotion regulation. Its results supported a decline of DERS scores throughout the course of the IMH DBT program that was sustained three months after completing the intervention. The scores at baseline and at post-treatment were comparable to the range of DERS scores reported in a benchmarking study (Azevedo et al., 2024) for DBT interventions for participants with borderline personality disorder symptoms. Their meta-analysis included RCTs and effectiveness trials studying full-mode DBT (provided for six or 12 months) and skills-only DBT, where benchmarks were calculated for the DERS and BSL-95 (both measures were also administered in this thesis). The mean pre-post difference in DERS scores was *MD* = -34.62 for full-mode DBT and *MD* = 31.76 for skills-only DBT (Azevedo et al., 2024). Although the intervention in Study 1 was a 12-week, adapted DBT (with adaptations to all four modes), the mean difference for DERS scores in the total sample and treatment completers were *MD* = -34.25 and -33.04 respectively, which appears acceptable given these benchmarks.

The present research examined all subscales of the DERS in Study 1, which notably corresponded with participants' narratives in Study 2. For example, participants in Study 1 reported a more gradual change in their emotional awareness (measured by the DERS), which aligned with the narratives of participants in Study 2 who reflected on a growing self-reflectiveness and emotional awareness within themselves during and following the DBT program (Theme Seven, Subtheme Three). For many, this was personally interpreted as a marker of improved emotion regulation. Other DERS subscales, such as expanding one's emotion regulation strategies and decreased impulsivity, showed more rapid improvements from as early as Time 4 in Study 1 and was also alluded to by participants in Study 2. In Study 2, narratives indicated that a main takeaway from the program was forming a repertoire of skills (Theme Six, Subtheme One), which aligned with the findings in Study 1

that supported a pattern of sustained improvements in DERS subscale scores (e.g., STRATEGIES, IMPULSE) three months after completion of skills training.

Another commonly used measure of borderline symptoms in DBT studies, the BSL-95, was a secondary outcome in Study 1. In this study, the mean pre-post intervention difference for BSL-95 scores was *MD* = -0.76 and *MD* = -0.63 for the total sample and treatment completers-only respectively. Mean change for the subsample of treatment completers was lower than the benchmarks reported by Azevedo et al. (2024) for full-mode DBT (*MD* = -0.75) and skills-only DBT (*MD* = -0.81). It is possible that in the current research that recruited a mixed diagnostic sample (not all of the participants had BPD), the individuals who presented with more severe symptoms dropped out of the adapted DBT program, and that they may have benefitted more from standard DBT.

Majority of the previous research has examined pre- and post-DBT levels of therapeutic outcomes and focused on self-harm and suicidal behaviours as a primary outcome. As the participants in Studies 1 and 2 presented with mixed clinical diagnoses, it was important to assess not only their scores on the DERS, but also the most common psychiatric symptoms of depression and anxiety. While the analyses could not distinguish between the impact of individual therapy alone and group skills training alone because these interventions co-occurred, it allows for estimation of the additive effect of DBT skills training. This can shed valuable insights because many clinical settings that adapt DBT skills groups often do so as an adjunctive intervention to individual therapy as usual, or even as a standalone treatment. The pattern of changes in anxiety appeared to be corroborated by the qualitative findings in Study 2, where participants reflected on their experiences in starting and ending DBT (Theme One). Specifically, Study 1 illustrated a temporary, short-term increase in anxiety levels post-group, which was corroborated by some individuals in Study 2 who shared that the ending was challenging for them, especially if they faced other changes to their overall treatment plan. Study 2 further contributes to the literature by including the voices of treatment dropouts, which provided some understanding about the profile of non-completers of the adapted DBT program, beyond the efforts made in Study 1 to re-run analyses on a sub-sample of treatment completers. These individuals reported that there were personal circumstances beyond their control that led to the attrition and that they needed more clarity on follow-up options in therapy.

Studies 2 and 3, although conducted separately, helped in growing an understanding of how both service users and service providers value DBT. Some therapists shared opinions about not using DBT to treat posttraumatic stress in Study 3, which aligned with two participants in Study 2 who reflected on how the group did not meet their needs in addressing trauma-related symptoms (Theme Seven, Subtheme Four). With regards to the DBT modes, analyses of qualitative data provided increasing understanding into how various stakeholders engaged with and experienced each mode and these will be discussed below.

***Individual Therapy***

The results of Study 3 highlighted that many times, therapists were not often delivering individual DBT therapy (one participant emphasized providing DBT-informed therapy due to not having the necessary training and accreditation) nor referring clients to DBT skills groups, but rather were integrating DBT skills into their individual therapy sessions. This supplemented the results from Study 2 that highlighted that there was limited access to DBT, with clients sometimes being unsure about how to obtain it (Theme One, Subtheme Three). In the individual interviews, clients in Study 2 did refer to the therapeutic alliance with their individual therapists (regardless of whether individual DBT was being provided) and the corroborative process of jointly developing a therapy plan. Some of the therapists in Study 3 also spoke about this and elaborated on their considerations for specific clients before offering DBT as a therapy option or not.

***Skills Training***

Clients who did enter formal, group-based skills training expressed appreciation for the group (group processes that contributed to positive therapy outcomes are elaborated on in Study 2, Themes Three and Four) and observed how there was a dynamic reciprocity between the modes of individual therapy and group skills training. This could be one explanation for a quantitative finding in Study 1, that skills training showed an additive effect beyond the effects of individual therapy alone (group skills training was added after Time 3). Another explanation for this was that many individual therapists, whether providing individual DBT or not, began to align their therapy sessions with the skills training curriculum (Study 2, Theme Four, Subtheme Three), almost as though it was a main intervention. This could be why participants also experienced skills training as being heavily featured,

to the extent that some individuals focused on it at the expense of other treatment modes (Theme Four, Subtheme Five).

As for the skills themselves, both clients and therapists shared about the inappropriate use of distress tolerance to avoid emotions, with one therapist (who identified with other therapeutic orientations and was less familiar with DBT) speaking about discontinuing teaching these skills due to the same observations. It was interesting that majority (40%) of the clients in Study 2, who had undergone formal skills training in a group, reported mindfulness as a favourite skill. On the other hand, therapists in Study 3 who were less familiar with DBT reported some difficulties with helping their clients to grasp mindfulness and might have taught it differently from DBT.

***Telephone Coaching***

Regarding telephone coaching, it was interesting that while therapists were apprehensive of providing the mode for fears of overworking (Study 3, Theme One), DBT-trained therapists who offered it, together with clients in the IMH DBT program (Study 3, Theme Five), found that that it was underused. This was corroborated by data made available in Study 1, that showed low rates of utilization of phone coaching in the IMH DBT program. It was possible that therapists who were more familiar with DBT knew the importance of ensuring that a clear orientation to this mode was conducted, as is typical of standard DBT. This involves openly discussing behavioural contingencies to prevent an inadvertent reinforcement of problematic behaviours by telephone coaching. The therapist may communicate their limits where applicable. In the current research, it was also the case that low utilization of telephone coaching was due to having adapted the intervention such that clients calling in would not necessarily be reaching their individual DBT therapist. In fact, participants in Study 2 shared several reasons for why they did not use it, with one being a lack of familiarity with the therapist who might be taking the call. As such, this adaptation may not have been advantageous in that the true usefulness of phone coaching was not able to be studied.

***Therapist Consultation Team***

This is not a mode that clients are directly involved in, however each client would have had contact with multiple therapists over the course of the program. The results in Study 2 showed that different individuals held a unique perspective of working with a team of therapists, with some

expressing appreciation for opportunities to work with more than one therapist, while others were unaware about the purpose of this mode (Theme Four, Subtheme Five). In Study 3, both therapists who had been in a DBT consultation team and therapists who had not alike pointed out the difficulties with being truly vulnerable with one's colleagues, and despite DBT's behavioural agreements, there were challenges given the hierarchical levels in their organizational structure. They reported that this might be specific to the Singaporean context, with a handful of therapists who had studied or worked abroad making comparisons between their experiences of team cultures elsewhere and in this country.

The idea of familiarity with DBT being essential for its effective implementation was seen across studies that included qualitative analyses. Therapists reflected on how their own level of familiarity influenced their implementation decisions, such as whether to use DBT or to train further in it or not. Some service providers who were less familiar with the therapy formed opinions that it was overly structured, while those trained in DBT valued that the therapy's structure helped to anchor clients with severe emotional dysregulation. There were some differences in the clinical practices of therapists who were more familiar with DBT versus those who were less familiar in terms of setting up telephone coaching with clients, delivering skills training in the way it was intended and demonstrating an understanding of what consultation is and how to engage in it, to name a few. In turn, the former group stressed the importance of familiarizing the organization in which themselves or their teams were situated in with the treatment. In organizations where many key stakeholders were unfamiliar with DBT or behavioural concepts, some participants informed that multi-disciplinary case management could be challenging, likely due to varied responses of each treatment provider to the client, leading to the appearance of reduced coordination in care or treatment plans. For clinicians, obtaining buy-in from their management was also essential to set up DBT, and this translated into practical support in the form of securing resources. Along with this, there was a clinician-manager/client-therapist parallel where clients themselves emphasized the need for familiarity with their individual therapist, in whom they placed trust in when it came to developing the treatment plan. Clients reported being more likely to take up DBT if they had a good rapport with the therapist who recommended it.

**Theoretical and Practical Implications**

Taking the results from Study 1 and 2 together, the adapted DBT program was associated with positive client outcomes. The retention rate of 78.13% was good; similar or better than other DBT studies as noted in the discussion section of Study 1. Given that the qualitative benefits reported by patients corroborated the quantitative improvements on self-reported outcomes, this program can be recommended for a general psychiatric population. However, whether it can benefit clients with more severe psychiatric symptoms remains to be seen, as the results in Study 1 showed that those who dropped out of the treatment tended to present with more severe difficulties in emotion regulation, depressive and anxiety symptoms, and internal shame compared to persons who completed the program. There is a possibility that they would require a more intensive and comprehensive treatment, that is, standard DBT with minimal adaptations.

It is also hoped that the findings of this research can be applied to support the establishment of new or specialised mental health services in Singapore, and in other countries. The current research stressed the importance of contextual factors when it comes to implementation of DBT, that is, keeping in mind where the DBT practitioner (and DBT team or program) is situated. In this case, the DBT program was an organic initiative by a group of psychologists who shared an interest in developing themselves more in the therapy. Study 3 made apparent that a strong intrinsic motivation for learning DBT stemmed from a desire to find a more effective way to help clients with disorders of emotion dysregulation. Stepping from a micro to macro view, administrators in Study 3 expressed concerns about resource distribution given that DBT appeared to be only one part of a much larger picture that they needed to manage in their job scopes. For ground-up implementation to take place, it is critical for outcome research to demonstrate the potential benefits of any intervention – not just solely to clients, but to providers and even the system – before support can be sought for it to be rolled out on a wider scale.

Based on the present research, a few recommendations for DBT teams (and possibly implementers of related or other types of therapy services) can be shared, depending on the stage of implementation that they are in. Teams that are in the beginning process of formation naturally would need to start with staff selection. In a study where community mental health administrators were

interviewed on DBT implementation (Herschell et al., 2009), this involved consideration of several selection criterion, but interestingly, the staff's familiarity with DBT was identified as one of the factors, among factors such as staff's credentials, staffing needs, whether someone volunteered, diversity, etc.

The present research shows that teams that are newly formed can start with identifying a champion (based on the research, someone who holds sufficient influence in their organization), setting a clear direction and goals for the program, defining each team member's role in contributing to these goals and building a referral pathway. As pointed out elsewhere, DBT training is in itself an implementation strategy (Comtois & Landes, 2019), and the current research seems to support that this should be provided in a way that achieves an organization-wide reach. It is possible that not all staff in a single organization need to be fully trained, but a certain level of familiarity with DBT principles and skills may be required to allow for a cohesive team-based treatment. Like how therapists provided feedback on the difficulties with accessing training, it was interesting that clients spoke about difficulties with accessing DBT services (in Study 2, some participants commented that they were unaware of the IMH DBT program). Therefore, an area of development for any growing DBT program would be marketing and publicity. This should be done via an educational outreach to both members of public as well as other clinicians who would be potential referrers, to ensure a healthy take-up rate and sustain a full DBT program. In Study 1, the rationale for transiting into an open group format was partially due to referral-based challenges, whereas elsewhere, such programmatic decisions could be due to an overwhelming demand.

Teams that were in the midst of active implementation appeared to face more challenges with sustaining resources like manpower, which arguably should have been secured at an earlier phase. However, the chicken-and-egg dilemma that clinicians described in Study 3 means that this can be difficult to do without first demonstrating DBT's effectiveness, which means that practical implementation activities such as changing a clinic schedule or revision of professional roles or a clinician's job description may only be possible during this phase, and only after buy-in from the administration is secured. Managers, with their skillset in strategic thinking, are likely to be a great asset in the implementation process by working with the team to understand their specific challenges

and needs at each stage. Middle management can also be empathetic to what clinicians may perceive as implementation barriers and consider the wellbeing of any staff member who is directly involved in the implementation, given that Study 3's results illustrated that this is likely the phase where staff experience more stress. Again, training would seem to be an ongoing endeavour as at this stage, it is expected that teams would undergo transitions in terms of staff turnover, necessitating recruitment and retraining. A long-term strategy in dissemination would likely involve identifying therapists who could develop educational materials and be trained as trainers in the future, given that there was consensus that accessibility to training – currently provided only by overseas experts – posed a barrier to implementation. This would increase the ease with reaching entry-level therapists or even therapists-in-training who are exploring their preferred therapeutic orientation.

For teams that are even further along in implementation, for example having achieved scalability and sustained their program over the longer term, yet other recommendations can be provided, advanced training, for a start. However, new research would need to be conducted in a different country, one whose national healthcare system is already familiarized with DBT and running multiple programs across various agencies, to provide evidence-based suggestions – this would be beyond the scope of the current research that is studying DBT in a country in a relatively early implementation stage. In line with this, DBT teams in Singapore and the Asia Pacific region would do well to measure more than client outcomes, especially since Study 3 showed that current implementers found evaluation methods to somewhat inadequate. Outcomes of interest include those related to implementation, quality and dissemination at the levels of the client, practitioner and even the organization and system.

These studies reflected efforts to evaluate the different modes of DBT (especially where the evidence base is rather concentrated on evaluating skills training), the different skills modules in group skills training and the unique perspectives of different stakeholders. It is becoming increasingly apparent that when it comes to DBT, a one-size-fits all approach is not used to treat psychiatric disorders. In fact, DBT is also changing from the original and standard-format treatment, as evident in how variations of it exists for the different symptoms. The literature review in Chapter 2 demonstrates that providers in a real-world or naturalistic setting have needed to adapt DBT in their own ways. This

is indicative that dissemination is occurring – for example, new programs started by therapists returning from an overseas training so often differ greatly from the therapy in initial trials that was supervised by an expert. It is also possibly an indication that DBT is too comprehensive for many settings to fully implement at the outset. The challenge is continuing to deliver research-driven, empirically based treatment and this means that practitioners need clarity on what the key ingredients in DBT are, especially if they are choosing to retain only certain parts of the original model.

**Limitations and Future Directions**

There are several limitations of these studies, which include a limited sample size, limited number of data collection or assessment time points, relatively short follow-up period and the lack of DBT adherence ratings. Lastly, my roles as a practicing psychologist, DBT champion and member of the IMH DBT team meant that I was not fully removed from the clinical aspects of this work while conducting research. Each of these limitations will be discussed in turn below.

With regards to the first three limitations listed, these were related to the logistics of conducting the research, given that the studies were run in a naturalistic setting and could not disrupt any clinical decision-making or clinical processes as much as possible. To this end, the number of assessments and total duration of assessment for each participant had to be realistic, and care had to be taken during participant recruitment to ensure that access to treatment would not be unnecessarily delayed (e.g., due to waiting for someone to complete multiple pre-intervention time points, with each two points spaced three weeks apart). Due to various disruptions amidst a global pandemic, recruitment of clients proved to become difficult. The DBT team was required to brainstorm multiple ways to problem-solve challenges, such as making the shift to provide online group skills training, tweaking the format of the skills group (i.e., running an open group), scheduling therapists to serve as skills trainers or phone coaches on a rotational basis, etc. This meant that participants who were less technology savvy may not have joined the program. Qualitative findings from Study 2 also illustrated some costs and benefits of these changes that quantitative data would not have been able to measure, such as clients wishing that they had more opportunities to form the in-depth connections that could have been developed if the skills group were run face-to-face. Additionally, differences between online, in-person and hybrid individual therapy were not analysed in this study, and it should not be

assumed that each of these are equivalent in impact. Between-therapist differences (e.g., combinations of different skills group leaders) were also not analysed, leaving room for more questions as to which elements of DBT, and in which environment (e.g., online or offline) were most important to retain moving forward.

What the present research has illustrated is that DBT is a multi-component treatment, and that DBT implementation consists of many moving parts, especially in large systems. Trying to assess the exact impact of each mode or intervention was challenging, and perhaps this does not apply just to one therapeutic approach. Many therapies today are unlikely to be equal when offered across different treatment settings, and it would be realistic to assume that this is the case when therapy is further provided by therapists with varying levels of clinical and therapy-specific experience. Study 3 highlighted that therapists themselves recognized their limitations in terms of having the relevant training background, and a limitation of Study 1 was that the level of DBT adherence was not measured (not having adequate methods of evaluation had also been highlighted by therapists who were implementing DBT in Study 3).

When this research was first designed from 2019 to 2020, obtaining adherence ratings were difficult due to financial and data-transfer constraints, as using the standard DBT Adherence Coding Scale (DBT ACS; Linehan & Korslund, 2003) required the inputs of a formally trained rater based overseas. Over the recent years, the field of DBT continued to advance to the extent that the first norms were published for the DBT ACS (Harned et al., 2021a) and a DBT Adherence Checklist for Individual Therapy (DBT AC-I) was developed for self- and other-ratings (Harned et al., 2021b; Harned et al., 2023). A DBT Program Fidelty Checklist (DBT PFC; Harned & Schmidt, 2022), which was derived from the DBT-Linehan Board of Certification DBT Program Fidelity Scale (DBT-LBC, n.d.). These resources have now been made more freely available online for DBT practitioners. Moving forward, DBT researchers and clinicians should certainly utilize tools for measuring and reporting on adherence, given the many versions of DBT that now exist and the finding that therapist adherence to DBT was a predictor of reduced treatment dropout and suicide attempts (Harned at al., 2022). The future gold-standard may involve comparison of both self-ratings and expert-ratings, especially since a study on cognitive therapy performance showed that therapists, especially those who

are less competent, tended to over-rate their own competence compared to an expert rater (Brosan et al., 2008). In any country that intends to expand therapy services, service providers ethically need to ensure that they are providing the type of therapy that they profess to be doing.

Being an insider-researcher related to the IMH meant that there were pros and cons (in other words, limitations) that emerged at each phase of the research. During data collection, I found that while there was some ease in being able to contact participants, it was critical to closely follow ethical protocols to ensure that all participant consent was voluntary. I also needed to be conscious of any possible bias, especially during data analyses. In a way, there was an inherent dialectic in the insider-researcher role – it allowed me a deeper level of understanding into issues or probable reasons for any findings based on actual experiences (e.g., interactions with stakeholders as part of implementation), yet this needed to be balanced with a sensitivity (e.g., to confidential information). It was important to remember where a particular perspective was obtained to ensure that all research analyses were objective. When coding the qualitative data, I had to make certain that codes and themes were derived solely from the dataset and not influenced by information that was available to me as a clinician or colleague. In many ways, I feel humbled to have written this thesis as a scientist practitioner, and in doing so, witnessed firsthand how clinical practice shaped the research questions and design, and research findings in turn shaped changes in clinical decision-making and practice. I foresee this to be an ongoing, cyclical process throughout the course of DBT implementation, and look forward to seeing how the therapy continues to develop in Singapore and elsewhere in the world. Apart from Context, there were other aspects of Toms et al.'s (2019) framework that would warrant further study. In particular, an external researcher would be needed to accurately study the impact of the DBT champion, which could not be facilitated due to the limitations of my role.

Future studies can therefore investigate all these different aspects of DBT implementation, together with comparing the effect of the different components of the therapy. One possible way to do this is to compare full-mode DBT with skills-only DBT (as a standalone treatment) in a single treatment setting. To add to the complexity of the present evaluations, the studies were carried out over the course of an unprecedented global pandemic, resulting in the use of online or blended DBT. There is no existing research comparing these with standard DBT, although van Leeuwen et al. (2021)

have published recommendations that a permanent shift to online DBT should not be made if in-person options are available. It is expected that with the completion of this research, the skills training group will return to a face-to-face format, warranting another round of program evaluations. While Study 1 shed some light on tracking the impact of DBT over the course of different skills modules, the optimal treatment length for the local population (including clients with BPD versus clients without BPD) remains to be determined, and future studies could afford to examine this more closely as well.

While symptomatic change has frequently been the focus of outcome research on psychotherapies (and was the focus of the review in Chapter 2), the value of DBT can perhaps be determined in terms of efficiency – for instance, the speed of symptom reduction (as we tracked in Study 1). Building on the efforts to capture data from treatment dropouts in Study 1 and Study 2, future research can measure treatment engagement and therapeutic alliance. Building on the findings of Study 2 and Study 3 on the accessibility (or non-accessibility) of DBT, new studies can track clients' access to care or uptake of DBT together with the timeliness of the healthcare system in providing the treatment. Satisfaction with DBT can be measured across all stakeholders – while Studies 2 and 3 showed that DBT held value in the eyes of clients, therapists or clinicians, and some administrators, only a small body of DBT research has attempted to study acceptability of DBT using client feedback forms (e.g., Morgensterns et al., 2016). Research in these areas can aid decision-makers and organizations to identify the feasibility of DBT for their own treatment setting, and whether to put more resources into DBT or not.

The findings from Study 3 captured the difficulties and dilemmas of therapists who were in an active phase of DBT implementation, and their experiences were distinctive from others in a different phase (e.g., not yet started). Given that DBT is also intended to reduce burnout among practitioners (e.g., Couturier et al., 2021; Haynos et al., 2017; Perseius et al., 2007), it could be meaningful to continue tracking the burnout trajectories for active implementers and see if their views of the therapy (and of their clients or organizations) change over time. These studies were conceived in 2020, and as of 2024, more settings are implementing or preparing to implement DBT – to my best knowledge, other public healthcare institutions, private clinics, and a youth correctional facility. Such new developments present an opportunity to research the implementation process across these sites as it

unfolds, building on the research that has already been conducted to enhance the sustainability of evidence-based interventions in the future.

**Conclusions**

This thesis comprised three studies that made new contributions to the ever-growing evidence base on DBT, in being the first to track outcomes across a number of DBT modules albeit in a shortened, 12-weekly skills group delivered in an online environment. It also examined the rarely studied perspectives of various stakeholders in implementation, ranging from clients (being the first study to interview dropouts from DBT) to therapists (DBT and non-DBT-oriented) and medical practitioners who functioned as referrers to therapy.

Study 1 found that clients who underwent the IMH DBT program showed improvements across time in emotion regulation difficulties, depressive and anxiety symptoms, borderline symptoms, other concerns such as shame and distress from interpersonal difficulties, self-esteem, DBT skills use and mindfulness. The results were relatively robust when complete cases and treatment completers-only were examined, especially for the primary outcomes of interest. Study 2 shed light on the experiences of clients who enrolled into this program, in terms of which aspects of the adapted DBT program impacted on their treatment. They viewed the DBT skills group as the most salient of the four DBT modes in the program (notably, they observed a reciprocal transaction between this mode and individual therapy), and found the skills taught to be useful but that the content of the group was packed or rushed. Many of them recognized that to sustain treatment gains, ongoing, independent practice of these skills were necessary after completing the program. Group processes did not go unnoticed, even though skills training was held online. Study 3 showed that many therapists (with various levels of familiarity and experience in DBT) found that DBT was valuable and were also most cognizant of skills training among the four modes. Those who had trained in a different therapy were less likely to use DBT, but majority of the therapists who learned DBT were intrinsically driven by a strong desire to help clients with emotional dysregulation. They spoke about several barriers to implementing DBT and its modes, with the starkest being challenges in securing the necessary resources for it.

Through these findings, service users and service providers alike shared that DBT was indeed

valuable, but difficult to access. Clients did not know where they could obtain DBT services that were affordable, while therapists voiced concerns about the sustainability of doing DBT without the necessary manpower and time needed. Since standard DBT can be resource-intensive and costly to provide, and until there is organizational readiness to invest resources into the treatment, adapted DBT programs such as the one studied in this thesis can be beneficial. It can especially be helpful for treating common psychiatric symptoms of depression and anxiety. However, caution should be taken when offering the adaptation to clients with severe clinical needs, as it seemed that attrition from therapy was not prevented in such cases, thus the actual effects for them remain to be seen. Clients also need continued support after completing the adapted DBT program, either with a maintenance phase that facilitates some structured practice or review of the skills that they have gained or with collaboratively assessing whether they need a second acute phase for treatment (e.g., as in the case of treating symptoms of posttraumatic stress disorder, which the program does not adequately address).

With regards to obtaining buy-in from stakeholders and key decision-makers, a key theme was highlighted that involved the need for familiarization. Just as how clients needed help with learning and repeating something that was new to them, providers of this therapy need to accept that helping colleagues or managers learn about the benefits of DBT for their organization would be an essential part of the implementation process. DBT would become a lot more accessible if other professions apart from psychologists (e.g., medical doctors, nursing staff or social workers) were ideally on board as direct DBT providers or service providers that support those providing the therapy. This is in light of some reports in Study 3 that multidisciplinary case management would be more effective if team members were aligned in terms of understanding behavioural principles. To do this would require training, which is in itself an implementation strategy.

It seems that in any country where a new psychotherapy is being disseminated, full adoption would not be plausible without some adaptation first taking place, as shown in Chapter 2. Chapter 5 (Study 3) stressed on the importance of context, and therapists in Singapore reported practicing integratively most often, or having trained first in other types of therapies where funding had historically been directed. The uptake of DBT in Singapore in the recent years is not dissimilar from the global trend of adapting the therapy and its components to suit unique or low-resource contexts,

which is understandable as there are no existing DBT-specialized centres (nor in fact, for most other therapies). The way that DBT is being adapted now raises new questions, such as whether a DBT program containing only partial elements would be too watered down to still be considered a specialist therapy, and if it is, whether this specialist therapy is still more effective than general therapies when delivered by therapists who are non-experts in the particular therapy. It is likely that effect sizes of DBT-interventions will vary depending on the treatment setting, taking into consideration therapist competence and adherence, the client population and severity of clinical problems (which in fact moderates adherence; Harned et al., 2022), the capacity of the system to provide supports, etc. This would be the case for any therapy, as shown by a systematic review of the heterogeneity of schema therapy (van Dijk et al., 2023). Depending on the treatment setting, schema therapy ranged from six sessions to four years, or bi-weekly outpatient to full inpatient, delivered by nurses to delivered by fully supervised psychotherapists. This is not dissimilar to what has taken place with DBT.

At the same time, DBT's attractiveness can perhaps be attributed to its flexibility as a transdiagnostic treatment, not restricted to treating just one condition in a highly specific setting, making it widely applicable across many contexts. Rather than relying on rigid protocols, DBT as a principle-driven treatment can be applied transdiagnostically (and cross-culturally) in various adaptations for different ages, clinical populations, and settings. As the IMH DBT program (hopefully) continues to develop, more data would also be needed for understanding how DBT programs are sustained over the long-term, so that success factors can be mapped out for early implementers. Most importantly, when DBT is more established in Singapore, perhaps even with options for standard DBT, shortened DBT or adapted DBT, clients can then be given choices in their treatment beyond the current options that the country has to offer.

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## Appendix A

**Table A1**

*Program Outline of the 12-Week DBT Skills Training Group*

| Topic | Session | Standard Handout(s) | |
|---|---|---|---|
| ***3 Weeks Orientation, Mindfulness Skills*** | | | |
| Commitment Contract, Safety Contract and Plan; Biosocial Theory; Goals of Skills Training; Diary Card; Wise Mind | 1 | GH3:<br>GH5:<br>M3:<br>M3a: | Guidelines for Skills Training<br>Biosocial Theory<br>Wise Mind<br>Ideas for Practicing Wise Mind |
| Mindfulness 'What' Skills; Mindfulness 'How' Skills; Chain Analysis | 2 | M4:<br>M5:<br>GH6:<br>GH 7:<br>GH 7a: | Taking Hold of Your Mind: Mindfulness 'What' Skills<br>Taking Hold of Your Mind: Mindfulness 'How' Skills<br>Overview: Analysing Behaviour<br>Chain Analysis<br>Chain Analysis, Step by Step (with GWS2: Chain Analysis of Problem Behaviour) |
| Missing-Links Analysis; Contingency Management; | 3 | GH8:<br>IE20:<br>IE21:<br>IE22:<br>IE22a: | Missing-Links Analysis (with GWS3: Missing-Links Analysis)<br>Strategies for Increasing the Probability of Behaviours You Want<br>Strategies for Decreasing or Stopping Unwanted Behaviours<br>Tips for Using Behaviour Change Strategies Effectively<br>Identifying Effective Behaviour Change Strategies |
| ***3 Weeks Distress Tolerance Skills*** | | | |
| TIP Skills; Distracting, STOP | 4 | DT2<br>DT3<br>DT4<br>DT6<br>DT7 | Overview<br>When to Use Crisis Survival Skills<br>STOP Skill<br>TIP Skills: Changing Your Body Chemistry<br>Distracting |
| Self- Soothing, Improving the Moment | 5 | DT8:<br>DT9: | Self- Soothing<br>Improving the Moment |
| Radical Acceptance; Turning the Mind; Willingness | 6 | DT10:<br>DT11:<br>DT12:<br>DT13: | Overview: Reality Acceptance Skills<br>Radical Acceptance (with a modified DTWS9: Radical Acceptance and our own Reality Acceptance Worksheet)<br>Turning the Mind<br>Willingness (with a modified DTWS10: Turning the Mind, Willingness, Wilfulness) |

***(continued on p.235)***

**Table A1 (Continued)**

| Topic | Session | Standard Handout(s) | |
|---|---|---|---|
| ***3 Weeks Emotion Regulation Skills*** | | | |
| Understand, Identify, Label Emotions | 7 | ER1: | Goals of Emotion Regulation |
| | | ER2: | Overview: Understanding and Naming Emotions |
| | | ER3: | What Emotions Do for You |
| | | ER4: | What Makes It Hard to Regulate Your Emotions |
| | | ER5: | A Model for Describing Emotions |
| Checking the Facts; Opposite Action; Problem-Solving | 8 | ER7: | Overview: Changing Emotional Responses |
| | | ER8: | Checking the Facts (with ERWS5: Checking the Facts) |
| | | ER10: | Opposite Action (with ERWS6: Figuring Out How to Change Unwanted Emotions) |
| | | ER11: | Figuring Out Opposite Actions |
| | | ER12: | Problem Solving |
| Accumulating Positives and Building Mastery; Cope Ahead and PLEASE | 9 | ER15: | Accumulating Positive Emotions in the Short Term |
| | | ER16: | Pleasant Events List |
| | | ER17: | Accumulating Positive Emotions in the Long Term |
| | | ER19: | Build Mastery and Cope Ahead |
| | | ER20: | Taking Care of Your Mind by Taking Care of Your Body |
| ***3 Weeks Interpersonal Effectiveness Skills*** | | | |
| Rationale; Priorities | 10 | IE1: | Goals of Interpersonal Effectiveness Skills |
| | | IE2: | Factors in the Way of Interpersonal Effectiveness |
| | | IE2a: | Myths in the Way of Interpersonal Effectiveness |
| | | IE3: | Overview: Obtaining Objectives Skilfully |
| | | IE4: | Clarifying Goals in Interpersonal Situations |
| DEAR MAN; GIVE; FAST | 11 | IE5: | Guidelines for Objective Effectiveness: Getting What You Want (DEAR MAN) |
| | | IE6: | Guidelines for Relationship Effectiveness: Keeping the Relationship (GIVE) |
| | | IE7: | Guidelines for Self- Respect Effectiveness: Keeping Respect for Yourself (FAST) |
| Validation; Troubleshooting; Invalidation | 12 | IE17: | Validation |
| | | IEWS17: | Troubleshooting Interpersonal Effectiveness with Skills |
| | | IE18: | A 'How To' Guide to Validation |
| | | IE19: | Recovering from Invalidation |

*Note:* Standard handouts are obtained from *DBT skills training handouts and worksheets* (Linehan, 2015b).

# Appendix B

## DBT Program Fidelity Scale Sample Items, © DBT-Linehan Board of Certification

| | ITEM | RATINGS / ANCHORS (1) | (2) | (3) | (4) | (5) | N/A | Comments |
|---|---|---|---|---|---|---|---|---|
| | **ELEMENTS OF DBT** | | | | | | | |
| 1 | DBT program provides a designated primary provider for each client who is responsible for developing, modifying and organizing the implementation of the client's treatment plan. | Program does not assign a primary provider to each client. | The primary provider is not responsible for the client's treatment plan. | The primary provider is not on the DBT team, and there is no contract designating primary provider responsibilities for the client. | Each client enrolled in DBT has a designated primary provider who is responsible for implementing the client's treatment plan. | Each client enrolled in DBT has a designated primary provider who is responsible for developing, modifying and organizing the implementation of the client's treatment plan. | | The program is an adaptation that includes a modified skills training group (short-term, 12-weekly sessions), modified phone coaching (therapists are rostered to respond via callbacks during work hours; clients use hospital's 24h crisis hotline at other times) and modified consultation team (meets fortnightly). The individual therapist may be DBT-trained and on the DBT team (therapists who completed DBT Intensive training from 2019 to 202) or non-DBT-trained (no team). For individual therapists who are part of the team, the rating here would be a (5). Otherwise, there is no formal written contract with the non-DBT individual therapist, and the rating would be a (3). |
| 2 | DBT primary provider ensures interventions sufficient for the severity of the client. | There is no primary provider for each client. | There is a designated primary provder. There is no provision for providing back-up when primary therapist is unavailable. | There is no clearly defined process for evaluating or reporting client progress and treatment planning. | Program manual provides support for sufficient treatment; it is not routinely followed. | DBT primary provider ensures interventions sufficient for the severity of the client, including when personally unavailable. | | |
| 3 | Within the overall DBT program, all clinical-decision making that impacts the treatment plan for a specific client is referred to that person's primary provider | No one is tasked with making clinical decisions regarding the case | Treatment is directed by ancillary to DBT program staff without contract with the team. | Clinical-decision making that impacts the treatment plan for a specific client is referred to the DBT consultation team (not individual provider). | Most (but not all) clinical-decision making that impacts the treatment plan for a specific client is referred to that person's primary provider | All clinical-decision making that impacts the treatment plan for a specific client is referred to that person's primary provider | | The program is fully psychologist-run. In Singapore, the psychiatrist functions as the primary care provider in hospitals, under the national framework of care. A psychologist may helm the delivery of any therapy (DBT or others) but is not always the primary therapist, unlike in standard DBT; final clinical decisions may require approval by a medical doctor (psychiatrist). |
| 4 | DBT program offers DBT skills training | Program does not offer skills training | Team teaches some DBT skills, and includes other non-DBT skills. | Program does some skills training but not in any systematic way | Program offers a subset of skills (e.g., just emotion regulation), but not comprehensive skills training. | DBT program offers skills training utilizing standard DBT skills. | | The adapted program offers 12 weeks of skills training, covering selected skills from all four skills modules. |
| 5 | DBT program offers skills coaching during and outside of scheduled sessions | Program does not offer skills coaching | Coaching is provided, but therapists are not well-trained in skills | Coaching is provided only during skills sessions or individual sessions. | Program provides skills coaching in circumscribed hours, and/or utilizes a non-DBT service for after-hours coaching. Independent services have treatment plan for clients. | DBT program offers skills coaching 24/7 by DBT therapist or team members. | | |
| 6 | DBT program ensures that crisis intervention outside of scheduled sessions is available to the client | Program does not have a plan for crisis intervention to clients | Crisis intervention is provided, but therapists are not well-trained. | Crisis intervention is not provided outside of scheduled sessions. | Program provides crisis intervention and skills coaching during normal office hours with some extended hours | DBT program ensures that high-quality crisis intervention outside of scheduled sessions is available to the client | | If clients utilize the modified phone coaching, the rating for this item would be (4). If clients utilize the hospital's crisis hotline or the national crisis hotline (the other resources available to them), the rating would be a (2). |
| 7 | Provisions are made for involving others in client's care when necessary | The therapist has never obtained contact information for others in the client's life | Therapist has contact information for others, but it is not readily available. | Therapist has contact information, but it is not updated. | Therapist has updated contact information, but it is not available to the team. | Contact information for client and significant others is available to all team members at all times and up-to-date. | | |
| 8 | With vulnerable or dependent populations, outreach is made to include care providers in treatment | The therapist works only with the identified client, and has never obtained contact information for others in the client's life | Therapist has contact information, but does not include caregivers in treatment. | Therapist has contact information and meets with caregivers as requested by client | Therapist has contact information and meets with caregivers to exchange information | Therapist has contact information; caregivers are systematically included in treatment | | |

## Appendix C

**Table C1**

*Summary of Key DBT Adaptations*

| Diagnosis/ Condition(s) | Types of DBT Studied | Existing Evidence |
|---|---|---|
| Attention Deficit/ Hyperactivity Disorder | DBT-ST; I-DBT | Several studies on DBT-ST (average 13 weeks) in multiple countries (some of which made further modifications to length or added individual coaching), the largest study being a four-armed RCT ($n$ = 433). I-DBT was introduced for participants in one study who did not complete or respond to standard DBT. |
| Autism Spectrum Disorder | DBT-ST; RO-DBT | Two studies on different skills training groups (12 & 24 weeks), another with full-mode DBT (18 weeks), and one study on adapted RO-DBT (30 weeks) for a mixed diagnostic sample. Studies did not measure any symptoms of ASD. |
| Depression | DBT-ST; RO-DBT | DBT-ST (16 weeks) supported in one study. Preliminary support for RO-DBT with treatment-resistant depression with significant co-morbid personality pathology in older adults, which recently culminated in a multi-site RCT ($n$ = 250) for chronic and medication-resistant depression. |
| Bipolar Disorder | DBT-ST | Little effect of short-term DBT-ST (12 weeks) on mania, which should be a key treatment target. Effects of longer treatment remain to be seen. Standard DBT only studied in adolescents (DBT-A). |
| Anorexia Nervosa (including subtypes) | RO-DBT; Standard DBT with an additional skills module | Early research on RO-DBT, an up-and-coming treatment for this diagnostic group. One study augmented standard DBT with radical openness (RO-DBT skills module). Majority focused on outpatient treatment, with one adding a fifth skills module (self-management) for 3-month inpatient DBT. Both modules did not address ED directly. Standard DBT-A studied in a mixed sample of adolescents (AN and BN), where treatment was lengthened from 16 to 25 weeks. |
| Binge Eating Disorder | Stanford Model (DBT-BED); DBTgsh | Effectiveness for the Stanford Model/DBT-BED (20 sessions) well-studied in multiple RCTs with appropriate comparison groups (e.g., wait-list, active control group therapies); alternative to first-line CBT. Research on DBTgsh (12–13 weeks) is preliminary. |

***(continued on p.238)***

**Table C1 (Continued)**

| Diagnosis/ Condition(s) | Types of DBT Studied | Existing Evidence |
|---|---|---|
| Bulimia Nervosa | Stanford Model (DBT-BN); standard DBT with and without ED-specific modifications; DBT-AF | More research required as most studies did not draw from a purely-BN sample and recruited female-only participants. Although the Stanford Model for BN (DBT-BN) should be delivered individually, only one out of two studies followed this framework (the other included participants with BED and delivered the group format). Modifications to standard DBT in one study were on binge eating, where majority of participants presented with BED rather than BN. Limited research on DBT-AF (one study), where with a non-conventional comparison group (6-week delayed-treatment group) and no follow-up data. |
| Multi-diagnostic or Complex Eating Disorders | MED-DBT; DBT-based PHP | MED-DBT studied in an IOP+DTP (6 months). Effectiveness of a DBT-based PHP also demonstrated across three studies (mean treatment duration of 88.7 to 97.09 days). Both resource-intensive with ED-specific interventions adopted from CBT for Eds; gradual stepping-down of care. Further research needed to isolate effects of multiple treatment components and/or non-specific variables. |
| Post-Traumatic Stress Disorder | DBT-PE; DBT-PTSD | DBT-PE Protocol for co-morbid PTSD and BPD supported by case studies, uncontrolled and controlled trials. The strongest RCT compared DBT-PE with DBT, but sample size was small ($n$ = 26). DBT-PTSD, catered to patients with childhood sexual abuse, was tested in inpatient and outpatient settings (12 and 24 weeks respectively) before a large scale RCT ($n$ = 193) that compared DBT-PTSD with CPT. Both treatments only tested in all-female samples. |
| Psychosis | DBT-ST | Limited evidence; one single-group study on a DBT-informed skills group (8 sessions). |
| Substance Abuse and Dependence | DBT-SUD; DBT-ST | RCTs for DBT-SUD recruited abusers of methamphetamine, opioids, and other substances. DBT-ST (3 months) tested with alcohol dependence. Individuals with co-morbid SUD and BPD would likely benefit from DBT-SUD, while other forms of treatment (e.g., standard DBT, DBT-ST or shortened DBT skills) would benefit individuals with less severe needs. |
| Intellectual Disability | SS/DBT-SS; DBT-SP | Research on both adaptations in its infancy; one uncontrolled trial published for each. |
| Trichotillomania | DBT-enhanced CBT | Series of studies published from 2010 to 2012, including a treatment outline (11 individual sessions). No recent developments since then. |

DBT = Dialectical Behavioural Therapy; DBT-ST = DBT skills training-only; I-DBT = Intensive DBT; RCT = randomized controlled trial; TAU = treatment-as-usual; RO-DBT = Radically-Open Dialectical Behaviour Therapy; DBT-A = DBT for Adolescents; AN = Anorexia nervosa; DBT-BED = DBT for Binge Eating Disorder; DBTgsh = Guided self-help in DBT; RCT = randomized controlled trials; CBT = Cognitive-Behavioural Therapy; DBT-BN = DBT for Bulimia nervosa; DBT-AF = Appetite-Focused DBT; MED-DBT = Multidiagnostic Eating Disorders for DBT Model; PHP = Partial Hospital Program; IOP = Intensive Outpatient Program; DTP = Day Treatment Program; ED = eating disorder; DBT-PE = Standard DBT with a DBT-Prolonged-Exposure Protocol; DBT-PTSD = DBT for posttraumatic stress disorder; PTSD = Posttraumatic stress disorder; BPD = Borderline Personality disorder; CPT = Cognitive Processing Therapy. DBT-SUD = DBT for substance use disorder; SUD = substance use disorder; SS = Skills System; DBT-SS = Standard DBT with Skills System; DBT-SP = DBT for Special Populations

## Appendix D

**Table D1**

*Overview of Studies Examining Types of DBT Adapted for Various Psychiatric Conditions*

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| **DBT for Attention Deficit Hyperactivity Disorder (ADHD)** | | | |
| Hesslinger et al. (2002) | ADHD in adults (*N*=15; mean age 32.3 years; 33.3% female); Germany | 13-week DBT skills training (*n*=8) vs waitlist (*n*=7) | Weekly group sessions (2h) covering topics of: clarification (session 1), neurobiology/mindfulness I (session 2), mindfulness II (session 3), chaos and control (session 4), dysfunctional behaviour/ behaviour analysis I (session 5), behaviour analysis II (session 6), emotion regulation (session 7), depression/medication in ADHD (session 8), impulse control (session 9), stress management (session 10), dependency (session 11), ADHD in relationship/self-respect (session 12), retrospect and outlook (session 13). Participants could request for additional individual sessions and contact therapists by phone (e.g., for severe crisis). |
| Philipsen et al. (2007) | ADHD in adults (*N*=72; mean age 35.8 years; 40.3% female); Germany | 13-week DBT skills training | Weekly group sessions (2h), covering topics of: introduction, education on ADHD, therapy agreements (session 1); neurobiology/mindfulness (sessions 2, 3); chaos and control (session 4); dysfunctional behaviour/behaviour analysis (sessions 5, 6); emotion regulation (session 7); depression/ medication in ADHD (session 8); impulse control (session 9); stress management (session 10); dependency/abuse (session 11); ADHD in relationships/self-respect (session 12); retrospect and outlook (session 13). |
| Hirvikoski et al. (2011) | ADHD (majority: combined type) in adults (*N*=51; mean age 39.0 years; 62.7% female); Sweden | 14-week DBT skills training (*n*=26) vs discussion group (*n*=25) | DBT-based skills training group: Based on Hesslinger et al. (2002; manual / workbook published in 2004) and adapted to a Swedish context after a pilot group. One session (topic: 'Homework') and written mindfulness materials were also added. Weekly group sessions (2h; group sizes of 4–8).<br>Control group: 14-session, loosely structured discussed group (2h) |

***(continued on p.240)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Prada et al. (2015) | BPD (*N*=166), and a subgroup with comorbid ADHD (*n*=67; mean age 30.8 years; 91.5% female); Sweden | BPD patients receiving 1-month Intensive DBT (I-DBT; *n*=76) vs BPD-ADHD patients receiving I-DBT + methylphenidate (*n*=24) vs BPD-ADHD patients receiving I-DBT (*n*=23) only | Based on the program described in McQuillan et al. (2005) and Perroud et al. (2010) at an outpatient unit (hybrid of day hospital and crisis centre); program was named as Intensive DBT (I-DBT). I-DBT is a second course of treatment following nonresponse or noncompletion of a first course of standard DBT at the centre. 4 days/week group skills training covering the 4 DBT modules (2–4h/day; totalling 13 hrs/week). Individual therapy (unspecified duration). Telephone contact with therapists from 8.30–6pm; crisis calls supported by a nurse on duty outside of these hours. Weekly consultation team meetings. |
| Fleming et al. (2015) | ADHD (primarily DSM-5 inattentive type) in undergraduates (*N*=33); Pacific Northwest | 9-week DBT skills training (*n*=17) vs self-guided skills handouts (*n*=16) | Weekly skills training (9 sessions + 1 booster session in the 1st week of the following academic quarter; 90 mins); DBT skills were adjusted from standard DBT covering topics of: group orientation and goal-setting, psychoeducation, mindfulness (session 1); daily planner use, chunking tasks and prioritization (session 2); structuring environment, using social support (session 3); management sleep/eating/exercise (session 4); generalizing and troubleshooting skills use (session 5); emotion regulation (session 6); generalizing and troubleshooting skills use (session 7); review of skills, plan for high-demand period (session 8) and maintenance-planning (session 9). Individual pre-group meeting for motivation enhancement (15-min). Phone coaching (weekly [7 sessions in total]; 10-15mins). |
| Philipsen et al. (2015) | ADHD in adults (*N*=433; mean age 35 years; 47.5% female); Germany | 1-year DBT skills training + methylphenidate (*n*=107) vs DBT skills training + placebo (*n*=109) vs clinical management (CM) + methylphenidate (*n*=110) vs CM + placebo (*n*=107) | DBT-ST: Based on Hessliger at al. (2002) and Hirvikoski et al. (2011); see study protocol (Philipsen et al., 2010) for information. 1st 12 weekly skills training covering topics of: introduction (session 1); mindfulness I (session 2) and II (session 3); chaos and control (session 4); functional analysis I (session 5) and II (session 6); emotion regulation (session 7); depression/medication in ADHD (session 8); impulse control (session 9); stress management (session 10); dependency/abuse (session 11); ADHD in relationships/self-respect (session 12). Next 9 monthly skills training to consolidate skills, with repetition of mindfulness, chao and control, functional analysis, emotion regulation and stress management modules. The final, 22nd session covered the topic: retrospect and outlook. Each session was 2x50 mins, with a break of 20 mins.<br><br>CM: Each session was 15-20 mins, where non-directive support was provided (specific interventions of the other treatment was disallowed e.g., mindfulness). |

***(continued on p.241)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Morgensterns et al. (2015) | ADHD in adults (*N*=102; mean age 37.4 years, 68.4% female); Sweden | 14-week DBT skills training | Based on Hirvikoski et al. (2011), i.e., the Swedish version of the ADHD skills training manual / workbook (Hesslinger et al. 2002; 2004), with modifications following participant feedback from the previous RCT (Hirvikoski et al., 2011). Weekly skills training (2h; group sizes 8–10). Weekly individual homework coaching by phone or in-person (10–30 mins). Opt-in additional time after each group session for non-structured group discussions without therapist involvement (45–60 mins). |
| Cole et al. (2016) | ADHD in adults who were poor or partial responders to medication (*N*=62; mean age 37.8 years; 46.8% female); Switzerland | 12-month CBT/DBT skills training (*n*=49) vs wait-list (*n*=13) | Two modules inspired from CBT interventions (Impulsivity/Hyperactivity and Attention) were added to the 4 DBT modules; sessions followed the format of homework review and teaching of new skills. Weekly individual sessions for generalizing acquired skills. |
| Edel et al. (2017) | ADHD (combined and inattentive type) in adults (*N*=91; mean age 35.3 years; 39.6% female); Germany | 13-week DBT skills training (*n*=52) vs mindfulness-based training group (MBTG) (*n*=39) | STG: Exactly followed Hesslinger at l. (2002); program was referred to as a DBT-oriented skills training group (STG).<br>MBTG: Created by authors and based on the Mindfulness-Based Stress Reduction program (Kabat-Zinn, 1982) and mindfulness part of DBT for patients with BPD (Bohus & Wolf, 2009).<br>Group sizes of 5–10 for each condition. |
| Moritz et al. (2021) | ADHD in adults (*N*=31; no demographic information); Brazil | 12-week DBT skills training (*n*=16) vs TAU (*n*=15) | Translation and adaptation of Philipsen et al.'s (2015) protocol, with addition of the Brazilian Portuguese version of DBT worksheets (Linehan, 2018). Weekly group sessions (2h; group sizes of 4–8). |
| Halmøy et al. (2022) | ADHD (majority: combined type) in adults (*N*=121; mean age 37.0 years; 56.2% female); Norway | 14-week DBT-based skills training (*n*=50) vs TAU (*n*=54) | Based on Hirvikoski et al. (2011), which was adapted from Hesslinger et al. (2002); referred to the DBT program as a DBT-based group treatment (DBT-bGT).Weekly group sessions (2h separated by a 15-min break; group sizes of 7–9) covering topics of: psychoeducation, mindfulness, functional behavioural analyses, and ADHD symptom management (e.g., impulsivity, addiction, emotional regulation, self-esteem, and relationships). Individual coaching (15-20 mins) of individual coaching after each group session. |

***(continued on p.242)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Meyer et al. (2022) | ADHD (majority: combined type) in adolescents (*N*=164; mean age 16.6 years; 4.0% female); Sweden | 14-week DBT skills training (*n*=85) vs psychoeducational treatment group (*n*=79) | SSTG: Adapted from Hesslinger et al. (2002), with adaptations to suit an adolescent population e.g., simplified language, age-appropriate examples, less theory, more practical exercises, reduced number of homework assignments, and other changes to the session-by-session content (see study protocol [Meyer et al., 2019] for information), covering topics of: group orientation and goal-setting, introduction (session 1); neurobiology and mindfulness I (session 2); homework and mindfulness II (session 3); acceptance and mindfulness III (session 4); chaos and control (session 5); emotions (session 6); behavioural analysis (session 7 and 8); medication, mental illness, and how to increase wellbeing (session 9); impulsivity, risk behaviour, and addiction (session 10); stress (session 11) and retrospect and outlook (session 12). Program was referred to as a structured skills training group (SSTG). Weekly group sessions (2h).<br><br>SKILLS: Active control treatment comprising 3 session (2h) including information on ADHD symptomatology, covering topics of: what is ADHD? (session1); take charge over your daily life (session 2); take charge over your ADHD (session 3). DBT-related components (e.g., mindfulness, behavioural analysis, acceptance) were excluded. |
| **DBT for Depressive Disorders** | | | |
| Hartmann et al. (2019) | ASD without co-occurring intellectual disability (ID; *N*=7; mean age 21 years; 42.86% female); Germany | 12-week DBT- and CBT-informed group intervention | Weekly group sessions (90 mins), with 2 follow-up sessions at 1 month and 4 months post-intervention. Each session included a 3–5-min mindfulness introduction, 20–30-min didactic that focused on emotion identification and evaluation of intensity (anxiety in sessions 3–7, anger in sessions 8–10) and social situations eliciting these emotions, a break for informal social interaction, 45–60-min practice (e.g., imagined and in-vivo exposure situations, discussions), and cool down (where participants chose an audio-visual medium to re-establish emotional equilibrium). Participants provided with handouts revised for autism-specific content. |
| Cornwall et al. (2021) | Diagnosis of ASD (majority) in *N*=48 patients referred to an RO-DBT program (*n*=23; mean age 35.6 years; 52% female) | 30-week Radically Open DBT (RO-DBT) skills training | Weekly skills training (2.5h) aimed at decreasing behavioural overcontrol (unlike behavioural dyscontrol in standard DBT) and aloofness. This program did not include weekly individual sessions typical in standard RO-DBT due to limited staffing. |

***(continued on p.243)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Bemmouna et al. (2022) | ASD without ID and with self-harm or suicidal behaviours (*N*=7; mean age 27.71 years; 42.86% female); France | 18-week Full-mode DBT | Weekly group skills training (2h 15mins) using brief DBT protocol based on Neacsiu et al.'s (2014) and Weiner (2019), with 16 sessions covering the four DBT modules and 2 debriefing sessions (for skills review, answering questions and feedback gathering from participants) midway and at the end of treatment. Topics covered: Mindfulness (sessions 1–2); distress tolerance (sessions 3–6); interpersonal effectiveness (session 7–9); mindfulness skills review (session 10); emotion regulation (sessions 11–16). Patient manuals had reduced text, additional images to illustrate skills, and other visual tools (e.g., 'emotional thermometer'). Participants' focused interests were used in examples during sessions and in between-session practices. Weekly individual therapy (1h). Access to telephone coaching. Weekly therapist consultation team (2h). |
| Ritschel et al. (2022) | Primary diagnosis of ASD without ID, with various co-occurring mental health conditions (*N*=16; mean age 36.62 years; 23% female); United States | 24-week DBT skills training | Weekly group skills training (1.5h/session; capped at 5 members/group), following the standard DBT format of mindfulness practice, homework review, a short break, teaching of the week's skill. Skills modules included distress tolerance (6 sessions), emotion regulation (7 sessions), interpersonal effectiveness (5 sessions); a module on orientation and mindfulness (2 weeks) was conducted in between each of these three modules. |
| **DBT for Depressive Disorders** | | | |
| Lynch et al. (2007); Study 1 was previously published under Lynch et al. (2003) | Treatment-resistant major depressive disorder (MDD) in older adults, with various co-morbid personality disorders (Study 1: *n*=34; mean age 66 years; 85% female; Study 2: *n*=65; mean age 61.40 years; 45.7% female); United States | Study 1: 28-week DBT (skills training, telephone coaching) + medication vs medication-only<br><br>Study 2: 24-week DBT (individual therapy, skills training) + medication vs medication-only | Study 1: Weekly skills training (2x 14-week DBT skills sequence; 2h), covering the modules of: education about depression and mindfulness (4 sessions); distress tolerance (2 sessions), emotion regulation (3 sessions), interpersonal effectiveness (5 sessions). Titles of session topics are provided in the article. Weekly telephone coaching (30 mins).<br><br>Study 2: Weekly skills training (no information on content). 24 individual sessions (initially weekly and could be tapered midway; required to end within 30 weeks.<br><br>No information on session duration (individual/group). |
| Harley et al. (2008) | Treatment-resistant depression in adults (*N*=24; mean age 41.8 years; 75% female); United States | 16-week DBT skills training (*n*=13) vs wait-list (*n*=11) | Weekly skills training sessions (1.5h), where the teaching portion was facilitated before homework review. Skills that were most relevant to skills deficits of patients with MDD were selected. |

***(continued on p.244)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Webb et al. (2016) | MDD in inpatients, with notable diagnostic comorbidity (anxiety disorders, among others) (*N*=173; mean age 35.47 years, 56% female); United States | Daily inpatient groups (CBT-based, ACT-based or DBT-based); average treatment duration = 11.72 days | Daily group sessions (50 mins; up to 5 session/day, 5 days/week). All 4 DBT skills modules; noted mindfulness groups overlapped between DBT and ACT. |
| Lynch et al. (2018c) | Refractory depression in adults (96% met criteria for ≥1 comorbid disorder excluding cluster B PD, bipolar disorder, psychosis; mean age 47 years in RO-DBT group and 48yo in TAU group; 64% female); United Kingdom | RO-DBT + TAU (*n*=162) vs TAU (any treatment except standard DBT; *n*=88) | Manualized RO-DBT (Lynch et al., 2018a; 2018b) comprised 27 skills training classes (2.5h; session plans provided in article's appendix), 29 weekly individual therapy (50-60 mins), weekly consultation team (1.5-2.5h). |
| **DBT for Bipolar Disorder (BD)** | | | |
| Van Dijk et al. (2013) | Bipolar I or II in adults (*n*=24 in the RCT; mean age 43.2 years; 75% female; data of 56 other treatment-completers incorporated into secondary analysis to increase study power to form *N*=75); Canada | 12-week DBT-based psychoeducational group (*n*=12) vs wait-list (*n*=12) | Program was named as DBT-based psychoeducational group. Weekly group sessions (90 mins); 2 on psychoeducation about bipolar disorder (on medications, self-care), traditional DBT skills pared down to fit remaining weeks, with mindfulness taught all 12 weeks. Topics covered: psychoeducation about BD, introduction to mindfulness (session 1); psychoeducation about BD, states of mind (session 2); medications for BD (session 3); reducing vulnerability to emotions (session 4); nonjudgmental stance (session 5); radical acceptance (session 6); distraction, self-soothing, pro's and con's, urge management (session 7); factors about emotions, self-validation (session 8); opposite to emotion action (session 9); looking at relationships, balancing enjoyable activities with responsibilities (session 10); assertiveness (session 11) and follow-up resources (session 12). Participants continued working with other professionals (e.g., physicians/ psychiatrists, individual therapists, case managers). |
| Goldstein et al. (2015) | Bipolar I, II, or not otherwise specified in adolescents (*N*=20; mean age 16.12 years; 75% female); United States | One-year standard DBT-A (*n*=14) vs TAU (cognitive-behavioural, psychoeducation, supportive interventions; *n*=6) | Based on DBT-A (Miller et al., 2006), with illness-specific modifications. Interventions delivered over 36 sessions (weekly in first 6 months, then tapered). Skills training sessions conducted with individual family unit, alternated with individual DBT (1h). |

***(continued on p.245)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Eisner et al. (2017) | Bipolar I in adults (*N*=37; mean age 41.3 years; 72.97% female); United States | 12-week DBT skills training; telephone check-ins offered | Weekly skills training (105 mins; psychoeducation for bipolar disorder combined with DBT skills; 3 core DBT skills covered). Interpersonal effectiveness was excluded due to the study's goal of specifically targeting emotion regulation. Weekly telephone check-ins scheduled by group leaders (up to 20 minutes). No restrictions on type of individual therapy (each participant expected to participate minimally twice a month). |
| Zargar et al. (2019) | Bipolar I (maintenance phase) in adults (*N*=49; mean age 30.94 years; 59.18% female); Iran | Complementary 12-week DBT skills to pharmacotherapy (*n*=24) vs routine pharmacotherapy (*n*=25) | Weekly group skills training (1 to 1.5h; group sizes of 12–13); psychoeducation on bipolar disorder (including symptoms, causes and medication) and selected skills. Topics covered: psychoeducation about BD, introduction to mindfulness (session 1); mind states (session 2); medications (session 3); making balance (session 4); not judging (session 5); acceptance (session 6); individual management (session 7); self-confirmation (session 8); coping with excitement (session 9); take a look at relationships (session 10); decisiveness (session 11) and summary (session 12). |
| Afshari et al. (2020) | BD in adults (*n*=60; mean age 36.5 years; 56.67% female); Iran | 12-week DBT skills training (*n*=30) + medication vs wait-list (medications only) (*n*=30) | Based on Van Dijk et al. (2013), with weekly open group sessions (90 mins). 2 sessions focused on providing education about bipolar disorder, 1 on medications for bipolar disorder, 1 on self-care, 8 on distress tolerance and emotion regulation skills. |
| Wright et al. (2020) | Bipolar spectrum condition (bipolar I, II, other specified bipolar disorder or cyclothymic disorder) adults (*N*=12, mean age 42 years; 75% female); United Kingdom | 16-week DBT-informed program | Program was named as Therapy for Inter-episode Mood Variability in Bipolar Disorder (ThrIVe-B). Group skills training (16 sessions + 2 booster sessions at 3 and 6-months post-intervention) in a modular format; mindfulness I (2 sessions), emotion regulation (5 sessions), mindfulness II (2 sessions), distress tolerance (2 sessions), interpersonal effectiveness (4 sessions) and consolidation (1 session); skills were selected to target mood instability in bipolar disorder. Individual sessions (monthly, up to 30 mins). Supporting smartphone application. |
| Wright et al. (2021) | Same as the single-arm feasibility study i.e., Wright et al. (2020) (*N*=43; mean age 46.4 years; 53% female); United Kingdom | 16-week DBT-informed program (*n*=22) vs TAU (*n*=21) | Based on Wright et al. (ThrIVe-B; 2020). Group skills training (15 sessions + 1 booster session 3 months post-interventions). Individual sessions (up to 7; up to 45 mins). 'Supporters' sessions for friends or family (1 session, midway through program). Supporting smartphone application. |

***(continued on p.246)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| **DBT for Anorexia Nervosa (AN)** | | | |
| Salbach-Andrae et al. (2008) | AN (*n*=6; 2 with AN-BP, 4 with AN-R) and BN (*n*=6) in adolescent outpatients (*N*=12; mean age 16 years; 100% female); Germany | 25-week DBT-A program (individual therapy, skills groups, telephone contact, case consultation team, parental involvement) | DBT-A (Miller et al., 2007) provided with two main adaptations – treatment was lengthened from 16 to 25 weeks, and a supplementary module on food, body image and emerging autonomy (skills groups covered all 4 DBT modules). |
| Kröger et al. (2010) | BPD with AN (*n*=9; 5 with AN-BP, 4 with AN-R) and with BN (*n*=15) in inpatients with poor responses to previous ED inpatient treatments (*N*=24; mean age 31.1 years; 100% female); Germany | 3-month adapted inpatient DBT program | Based on Kröger et al. (2006). Weekly individual therapy (1h), 3x/week group skills training (100 mins; fifth skills module on self-management strategies was added, i.e., daily self-monitoring, weekly weigh-ins, psychoeducation on weight, group meals). Other ED-specific modifications included meal planning, weight restoration, addressing beliefs about food, body shape and weight. Contingency management included consequences for self-injury (24h time-out from interacting with individual therapist, during which nurses assisted the client in chain analysis). |
| Lynch et al. (2013) | AN-restrictive type (AN-R) in inpatients (*N*=47; mean age 27.21 years; 95.7% female); England | RO-DBT; average treatment duration = 21.7 weeks for completers | RO-DBT's functions and modes are similar to standard DBT. Primary target adjusted to decrease severe behavioural overcontrol that pre-existed AN diagnosis (instead of dyscontrol); meaning the ED is deprioritized/ not the main focus. Individual therapy targets differ from standard DBT (emphasis on repairing alliance-ruptures). The authors detailed behavioural targets for every skills module, how the functions of RO-DBT were met, and specific skills. |
| Chen et al. (2015) | AN in outpatients (case series 1: *n*=6; mean age 32.3 years; 100% female; case series 2: *n*=9; mean age 27.56 years; 100% female); United States | Standard DBT combined with DBT for binge eating (case series 1; treatment ranged from 4–24 months); standard DBT augmented by radical openness skills module in RO-DBT (case series 2; treatment ranged from 4–12 months) | Case series 1: DBT for binge eating manual (Safer et al., 2009) referenced.<br>Case series 2: Early version of Lynch's 8-week module (Lynch & Cheavens, 2008) taught to participants individually after standard DBT skills training.<br>In both case series, DBT skills training was conducted individually. Treatment durations were uncontrolled (skills training 'repeated over time if clients were in treatment for longer than 6 months, and compressed if in treatment for less than six months'; Chen et al., 2015, p.126). |

***(continued on p.247)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Navarro-Haro et al. (2018) | ED (BN, AN or EDNOS) in adults (*N*=109; mean age 27.4 years; 100% female); Spain | 6-month DBT (*n*=64) vs TAU CBT (*n*=45) | Delivered in an outpatient treatment facility and day hospital, where patients attending the latter also received other ancillary therapeutic activities (eating schedules, controlled bathroom use, problem-solving training).<br><br>DBT: Standard DBT, where weekly group skills training was translated into Spanish and shortened (24 sessions; 2h).<br><br>TAU CBT: Cognitive behaviour program focused on ED pathology, where the dose of therapy was matched (1h weekly individual therapy and 2h weekly group session). |
| Navarro-Haro et al. (2021) | ED (BN, AN or EDNOS) in adults (*N*=109; mean age 27.3 years; 100% female); Spain | 6-month DBT (*n*=64) vs TAU-CBT (*n*=45) | Followed Navarro-Haro et al. (2018)'s protocol. |
| **DBT for Binge Eating Disorder (BED) (Randomized Controlled Trials-only)** | | | |
| Telch et al. (2001) | BED in adults (*N*=44; mean age 50 years; 100% female); United States | 20-week DBT-BED group (*n*=22) vs wait-list (*n*=22) | Based on Wiser & Telch (1999) and Telch et al. (2000). Subsequently used in other studies for DBT-BED and DBT-BN. Weekly groups (2hs). Two introductory sessions (orientation, commitment to DBT), 16 skills-teaching sessions (mindfulness, emotion regulation, distress tolerance skills only), two summary sessions (review, relapse prevention). |
| Safer et al. (2010) | BED in adults (*N*=101; mean age 52.5 years; 85% female); United States | 20 sessions (over 21 weeks) DBT-BED group (*n*=50) vs an active comparison group treatment (ACGT; *n*=51) | DBT-BED: Followed Telch et al. (2001).<br><br>ACGT: 'Non-directive Rogerian approach' based on Safer & Hugo (2006), no elements specific to DBT/ other BED treatments. |
| Robinson & Safer (2012) | BED in adults (*N*=101; mean age 52.5 years; 85% female); United States | 20-week DBT-BED group vs ACGT | DBT-BED: Followed Telch et al. (2001).<br><br>ACGT: Followed Safer & Hugo (2006). |

***(continued on p.248)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Masson et al. (2013) | BED in adults (*N*=60; mean age 42.8 years; 88.3% female); Canada | 13-week DBTgsh (*n*=30) vs wait-list (*n*=30) | DBTgsh: Self-help manual (adaptation of DBT for BED manual by Safer et al., 2010). Face-to-face orientation (45 mins), then six fortnightly telephone-sessions (20 mins). |
| Rahmani et al. (2018) | BED in female adults (*N*=60; mean age 29.66 years; 100% female); Iran | 20 sessions (over 10 weeks) DBT-BED group (*n*=30) vs wait-list (*n*=30) | Based on Telch et al.'s (2000, 2001) treatment protocol that was developed with Linehan. 2x/week group sessions (2h). Full session agenda is available in the article. |
| Dastan et al. (2019) | BED in adults (*N*=40; no information on mean age [mode age range 31–40 years]; 100% female); Iran | 20-week DBT-BED (*n*=20) vs. waitlist (*n*=20) | Based on the protocol by Safer et al. (2009), which covers three modules of mindfulness, emotion regulation and distress tolerance. Topics covered: commitment, dialectical abstinence from binge eating, conducting chain analysis and paced breathing (sessions 1–2); Wise Mind, mindfulness 'How' and 'What' skills (sessions 3–5); information on how emotion works, reducing emotional vulnerability, increasing positive emotional experiences (sessions 6–13); radical acceptance of reality, effective options for distress tolerance instead of binge eating (sessions 14–18); review and relapse prevention (sessions 19–20). |
| Carter et al. (2020) | BED in adults (*N*=71; mean age 40.70 years; 92.96%); United States | 12-week guided self-help in DBT (DBTgsh; *n*=24) vs active control conditions i.e., DBT and self-esteem unguided self-help (DBT-USH: *n*=24 ; SE-USH: *n*=23) | DBT self-help conditions (guided and unguided): Self-help manual 'The DBT Solution for Emotional Eating' by Safer et al. (2018). DBTgsh further received six fortnightly video-calls (30 mins).<br>SE-USH: Self-help book 'Self-Esteem: A Proven Program of Cognitive Techniques for Assessing, Improving and Maintaining Your Self-Esteem' (McKay& Fanning, 2016). |
| Lammers et al. (2021) | Subthreshold BED (*N*=175; mode age range 31–40 years; 100% female); Netherlands | 20-week DBT-BED (*n* = 42) vs intensive outpatient CBT (CBT+) (*n* = 133) | Followed the protocol by Safer et al. (2009). Closed group sessions (2h). Topics covered: goals of therapy and commitment to change (sessions 1–2); mindfulness, emotion regulation and distress tolerance skills (sessions 3–18), review of learned skills and relapse prevention (sessions 19–20). Weekly weighing was conducted for patients to monitor the consequences of changing eating behaviour. As a modification to the four-miss rule in standard DBT, patients were excluded if they missed more than two sessions. |

***(continued on p.249)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| **DBT for Bulimia Nervosa (BN)** | | | |
| Safer et al. (2001) | Binge/purge behaviours in adults (*n*=31; *n*=25 with BN following DSM-IV criteria; 6 others met modified DSM-IV criteria – one instead of two binge/purge episode/week; mean age 34 years; 100% females); United States | 20-week individual DBT-BN (*n*=14) vs wait-list | Followed Wiser & Telch (1999)'s protocol. Each session was aimed at teaching DBT skills (50 mins). |
| Chen et al. (2008) | BN and BED in adults with BPD (*n*=8; *n*=3 with BN and *n*=5 with BED; no information on mean age [Mdn = 31 years]; 100% female); United States | 6-month (24 session weeks) standard DBT with ED-specific adaptations to address binge eating | Followed Telch et al. (2001); 6 months instead of 1 year because of funding constraints. DBT model modified (binging understood as attempt to regulate affect). Commitment to stop binge eating elicited; clients weighed every individual session. DBT skills for binging (e.g., body and eating-related mindfulness exercises, dialectic abstinence) reinforced in individual/ group sessions. For telephone coaching, limits preventing calls 24 hours after life-threatening behaviours were adjusted to included binging. |
| Hill et al. (2011) | BN (*n*=26) and sub-clinical BN (*n*=6) in adults (*N*=32; mean age 22 years; 100% female); United States | 12-week DBT-AF (*n*=18) vs 6-week delayed treatment control group (*n*=14) | Two components of DBT-AF: i) appetite awareness training (Craighead, 2006) to increase awareness of internal appetite signals (hunger and fullness) that guide food intake; ii) individual DBT skills training as per Safer et al. (2009). First six sessions were 90 minutes each; total 15h intervention. |
| Klein et al. (2012) | BN (*n*=2) or BED (*n*=4 met full criteria, *n*=4 met partial criteria) in adults (*N* = 10; mean age 39.60 years; 100% female); United States | 16 sessions (over 18 weeks) of group treatment based on the Stanford Model (DBT for BED/ BN) + telephone coaching | Based on Telch et al. (2001). Group program covered mindfulness (including eating mindfulness), emotion regulation and distress tolerance skills only (2–2.5h). Disorder-specific diary cards used. Coaching calls were a departure from Telch et al.'s (2001) protocol. |
| Chen et al. (2017) | BN (*n*=25) and BED (*n*=42) in adults (*N*=67 excluding *n*=42 early strong responders to cGSH; mean age 38.01 years; 100% female); United States | Weak responders to guided self-help CBT (cGSH) were randomized to 6-month DBT (*n*=36) vs an adapted CBT (*n*=31) | Standard DBT based on Linehan (1993a), Safer et al. (2009). Weekly skills group (2h), individual therapy (1h), consultation team (2h), telephone coaching (24h). |

***(continued on p.250)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| **Studies Investigating DBT in Day Treatment Programs for Complex Eating Disorders** | | | |
| Federici & Wisniewski (2013) | Multi-diagnostic ED presentations in adults (*N*=7; *n*=3 with EDNOS, *n*=3 with AN-purging type, and *n*=1 with AN-R); all participants had co-morbid Axis I diagnoses and substantial Axis II traits (*n*=6 with BPD; mean age 23.86 years; 100% females); United States | 6-month MED-DBT | MED-DBT following Federici et al. (2012). Additions to standard DBT: daily goal-setting group that reviews diary cards (modified to suit ED behaviours and food diaries), weekly behaviour chain analysis group that reviews and problem-solves each member's target behaviours, a life-worth-living group that is activity-based and promotes healthy pursuit of life goals and personal values outside of illness, 'DBT 101' group that provides ongoing revision of DBT topics and reiterates rationales for DBT. |
| Ben-Porath et al. (2014) | AN and BN spectrum in adults (*N*=65; *n*=3 with AN, *n*=19 with subthreshold AN/ all criteria met except 3 consecutive missed menses; *n*=43 with BN; mean age 23.4 years; 100% female); United States | CBT-ED + weekly DBT skills-training group (average treatment length = 21.75 days) | Day hospital level of care (6h/day, 5 days/week). CBT groups (goal-setting group establishing goals for managing ED behaviours, thought restructuring group, in-vivo exposure to food/ group meals, and a dietician-run meal planning group) and DBT group skills training (2h/week; all 4 skills) offered. |
| Brown et al. (2018) | Longstanding AN and BN spectrum in adults (*N*=243; *n*=79 with AN-R, *n*=46 with AN-BP, *n*=118 with BN; 92.2% with significant comorbidity; mean age 26.55 years; 94.65% female); United States | DBT-based partial hospital program (PHP) (mean treatment duration = 89.2 days) | DBT-based PHP (6–10h/day, up to 6 days/week; most patients start at 10h/day), providing all DBT modes. Also provided: weekly psychiatric and dietary reviews, 3 supervised meals+2 snacks/day, applied-DBT or supplementary therapy groups (all 4 DBT skills, RO-DBT, CBT, CBT-Enhanced [CBT-E; Fairburn et al., 2009], ACT, process groups, expressive arts, nutrition, motivational, and goal-setting). Patients then stepped down to IOP (4h/day, 3–5 days/week focused on independent meal preparation, vocational planning, relapse prevention) before discharge to regular outpatient care. |
| Brown et al. (2019) | Primary ED diagnoses in adults (*N*=135; *n*=40 with AN-R, *n*=16 with AN-BP, *n*=58 with BN, *n*=4 with BED, *n*=17 with other specified feeding or eating disorder [OSFED]; mean age 25.08 years; 93.33% female); United States | DBT-based PHP for EDs (mean length of stay = 97.09 days, minimal admission of at least 1 month) | DBT-based PHP based on MED-DBT (10h/day, 6-days/week), focused on weight restoration where required and elimination of problem behaviours. All DBT modes provided (minimum of 5h of DBT-based groups/week, including standard DBT skills group). Given the intensive treatment schedule, all four DBT skills modules were taught in 3 months instead of 6 in traditional outpatient DBT. Participants were also required to eat 3 meals+2 snacks/day. Patients went into IOP before discharge to regular outpatient care. |

***(continued on p.251)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Brown et al. (2020) | AN and BN spectrum in adults (*N*=241; *n*=77 with AN-R, *n*=46 with AN-BP, *n*=118 with BN; mean age 26.63 years; 94.61% female); United States | DBT-based PHP for EDs (mean treatment length = 88.7 days) | DBT-based PHP following Brown et al. (2018), focused on weight restoration (starting at 10h/day, 6 days/week before stepping down to 6h/day, 5 days/week). Further stepped-down care to IOP (4h/day, 3–5 days/week) before discharge to regular outpatient care. |
| **DBT for Intellectual Disabilities (ID) (excluding single-case studies and non-treatment studies [e.g., program descriptions])** | | | |
| Lew et al. (2006) | ID and co-morbid Axis I diagnoses in adults (*N*=8; no information on mean age [range of 25–61 years]; 100% female); United States | Full-mode DBT (treatment duration not stated apart from skills group; assessments record up to 18 months in the program) | Program comprised all 4 modes, each with modifications for ID. Weekly groups (2h including a 30-min dinner break; group sizes of up to 8 [mode = 5]) covering the following modules: orientation and group rules (session 1); mindfulness (sessions 2–3); distress tolerance (sessions 4–8); mindfulness (sessions 9–10); emotion regulation (sessions 11–15); mindfulness (sessions 16–17); interpersonal effectiveness (sessions 18–22); celebration (session 23). Clients are scheduled for 3 group cycles, each lasting 23 weeks. Individual therapy (1h/week or 30-mins 2x/week). Telephone coaching was provided via DBT clinicians rotated on a scheduled roster; clients had individualized DBT plans for the coach's reference and some cases involved scheduled phone-in times for crisis prevention (where therapist contact was a behavioural contingency). Consultation team was provided at 2 levels for a developmental disabilities team and inter-agency team (e.g., with community clinicians or community residential providers with whom cases were shared). Of note, the model emphasized structuring the environment, which is a function of DBT, such that community supports (family members, support staff) recruited to reinforce self-monitoring (e.g., using simplified diary cards) and serve as a 1:1 coach in groups; group training sessions were provided to them. |
| Sakdalan et al. (2010) | ID and violent offending in adults (*N*=6; mean age 26.18 years; 16.7% female); New Zealand | 13-week DBT skills training | Weekly groups (1.5h) targeting quality-of-life and therapy-interfering behaviours rather than self-harm, covering modules of: orientation and group rules; mindfulness; distress tolerance; emotional regulation; interpersonal effectiveness; closing. Although not a DBT mode but rather a function of DBT, structuring the environment to support treatment was emphasized and implemented via ongoing training, education and supervision (e.g., for vocational and residential staff). |

***(continued on p.252)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Charlton & Dykstra (2011) | ID in adolescents (*N*=19; no demographic information); United States | DBT-SP (treatment duration not stated, but information from figures in the article show that clients spent up to 19 months in the program) | Delivered in a day treatment program, the DBT program was named as DBT for special populations (DBT-SP) and comprised 4 modes: DBT-SP focused individual therapy, skills training groups (30-60 mins; 2x/week; no information on total number of sessions), access to telephone coaching/crisis access (dialling the primary therapist or DBT-SP-trained officer manager during work hours; DBT-SP-trained emergency services personnel after-hours) and a consultation group for the treatment team. Adaptations pertained largely to language and presentation of materials – simplified concepts and language, rewritten handouts; also increased amounts of client feedback, repetition and rehearsal and guided clients to develop notes for caregivers at the end of the group (as a review, and so that caregivers serve as a skills coach for between-session practice). |
| Brown et al. (2013) | ID and/or challenging behaviours in adults (*N*=40; mean age 30.8 years; 15% female); United States | DBT-SS; average participant had data for 82 months of treatment (unknown exact treatment length) | Program was named as the Skills System (DBT-SS), comprising 4 modes. Weekly individual sessions (1h). Weekly group skills training (1h) that simplified key DBT skills, with modified DBT self-monitoring procedures (use of shift summary forms for support staff and simplified diary cards that used pictures) and formal behavioural treatment plans for contingency management (e.g., tangible rewards, classification of problem behaviours into low/ medium/high intensity). A subgroup of clients with sexual offending behaviours received an additional, weekly group (1h). Coaching was provided by support staff who undergo monthly training, as majority of the clients were placed in community residences with 24h supervision. Consultation was by DBT-SS therapists with the multidisciplinary team (residential agencies, vocational support teams, psychologists and medical staff). |
| Crossland et al. (2017) | ID in adults (*N*=4; mean age 34.5 years; 75% female); United Kingdom | 18-week DBT skills training | Weekly group skills training, incorporating materials from another program ('I can feel good'; Ingamells & Morrissey [2014]) and inputs from other clinicians in the field, covering four modules of: mindfulness (3 sessions), people skills (5 sessions), managing feelings (5 session), distress tolerance (5 session). An outline of session topics is provided in the article. In addition to the typical opening mindfulness practice, a closing mindfulness was also facilitated each session. |
| Hewitt et al. (2019) | ID in adults (*N*=3; mean age 40 years; 66.66% female); United Kingdom | 18-week DBT skills training | This was a 2-year follow-up from the program delivered in Crossland et al's (2017) study. |

***(continued on p.253)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Jones et al. (2021) | Mild-to-moderate ID in adults (*N*=20; mean age 40 years; 60% female) and their caregivers; Canada | 12-week aDBT-ID (*n*=10) vs control (*n*=10) | Program was named as adapted DBT program (aDBT-ID) and comprised all 4 modes. Weekly skills group was largely based on DBT-SP (Charlton & Dykstra, 2011). Mindfulness was integrated into the three remaining modules i.e., distress tolerance (sessions 1–5); emotion regulation (session 6–9); relationship effectiveness (sessions 10–12) (2h; group sizes of 5–6 and delivered to both patients and their caregivers who accompanied to sessions). Weekly individual DBT. Patients and their carers had telephone access to DBT group facilitators, their individual DBT therapists and a 24-h crisis line and outreach team (outside of business hours). Consultation team meetings were held after every group and also met monthly with the larger research team. |
| **DBT for Posttraumatic Stress Disorder (excluding single-case studies)** | | | |
| Harned & Linehan (2008) | Co-occurring PTSD and BPD in adults (*N*=2; 100% female); United States | 1-year standard DBT, with a PTSD (modified-PE) protocol (11 and 12 sessions of PTSD treatment for case #1 and case #2 respectively) | PTSD protocol (modified-PE) combined with standard DBT: weekly exposure sessions (90–120 mins) simultaneously with DBT. Consistent with PE, no. of exposure sessions determined case-by-case depending on ongoing assessment of PTSD symptoms; delivered over 3 treatment phases (pre-exposure, exposure, consolidation/ termination). |
| Steil et al. (2011) | PTSD related to childhood sexual abuse in adults (*N*=29; mean age 34.05 years; 100% female); Germany | DBT-PTSD (average attendance = 23 individual, 11 DBT skills training/self-esteem/psychoed, 35 mindfulness sessions) | Modular program in a residential setting. Individual therapy sessions with approx. ¼ of the time on exposure interventions (35 mins, 2x/week), weekly groups sessions (90 mins DBT skills, 60 mins self-esteem intervention, 3x25 mins mindfulness, 60 mins PTSD psychoeducation). Non-specific weekly group interventions also offered (music therapy, art therapy, motion therapy). |
| Harned et al. (2012) | Co-occurring PTSD, BPD and imminent and/or recent suicidal behaviour or serious non-suicidal self-injury in adults (*N*=13; mean age 39.4 years; 100% female); United States | 1-year standard DBT with DBT-PE Protocol | DBT-PE Protocol implemented when patients were ready (see Harned et al., 2012, for pre-set criteria). DBT-PE delivered by client's individual therapist – either a combined individual session (90-min DBT-PE and 30 mins DBT) or two individual sessions (one 90-minute DBT-PE and one 1h DBT session)/week. Other modes continually provided. |

***(continued on p.254)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Bohus et al. (2013) | PTSD related to childhood sexual abuse in adults (*N*=74; mean age 35.95 years; 100% females); Germany | 12-week DBT-PTSD (*n*=36) vs TAU waitlist (any treatment of choice except DBT-PTSD; *n*=38) | DBT-PTSD following Steil et al. (2011)/ multi-component residential program based on a standard DBT residential program for BPD (Bohus et al., 2004). |
| Geddes et al. (2013) | BPD features (minimum of 3) in adolescents (*N*=6; mean age 15.1 years; 100% female); Australia | 26-week modified DBT-A program | DBT program was delivered at a community mental health service, in two phases: i) 8-week commitment phase, ii) 18-week DBT-A treatment. All treatment modes in DBT-A (Miller et al., 1997) retained i.e., individual therapy (1–2/week), family skills group (18-weekly instead of 12-weekly in the original DBT-A), telephone consultation, consultation team. |
| Harned et al. (2014) | Co-occurring PTSD, BPD and intentional self-injury in females (*N*=26; mean age 32.6 years; 100% female); United States | 1-year DBT with DBT-PE Protocol (DBT+PE; *n*=17) vs DBT (*n*=9) | DBT+ PE: DBE-PE Protocol implemented when patients were ready; treatment followed Harned et al. (2012).<br>DBT: Following standard clinical DBT practice, PTSD addressed where relevant (e.g., applying skills) without direct targeting of PTSD (formal exposure or trauma processing). |
| Harned et al. (2018) | Co-occurring PTSD, BPD and intentional self-injury (*N*=26; mean age 32.6 years; 100% female); same sample as in Harned et al. (2014) | 1-year DBT with DBT-PE Protocol (DBT+PE; *n*=17) vs DBT (*n*=9) | DBT+PE followed Harned et al. (2014). |
| Steil et al. (2018) | PTSD related to child sexual abuse (*N*=21; mean age 34.05 years; 100% female); Germany | 24-week outpatient DBT-PTSD | DBT-PTSD based on Steil et al. (2011); modular treatment program modified to suit outpatient settings. Outpatient DBT-PTSD was structured into five stages: i) psychoeducation and contracting, ii) defining treatment aims (addressing concerns about exposure, jointly developing case conceptualization of PTSD), introducing mindfulness and implementing distress tolerance skills for problem behaviours, iii) addressing patterns in escaping distressing/ trauma-related emotions, iv) applying skills-assisted, exposure-based techniques, v) radical acceptance of trauma-related facts and working on psychosocial problems. Booster session conducted six weeks after treatment. |

***(continued on p.255)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Bohus et al. (2020) | PTSD related to childhood sexual or physical abuse, with BPD features (minimum of 3 including affective instability) (*N*=193; mean age 36.3 years; 100% female); Germany | 1-year DBT-PTSD (*n*=98) vs CPT (*n*=95) | DBT-PTSD followed a session-by-session protocol based on the principles, functions and modes of standard DBT but supplemented by interventions from TF-CBT, CFT and ACT. Skills training was integrated into individual therapy (up to 45 weekly sessions over a year, 3 monthly booster sessions); telephone consultation and consultation team (which the treatment developer was part of) provided. |
| Harned et al. (2021c) | PTSD in adults (*n* = 30) and adolescents (*n* = 5; total *N*=35; mean age 29.9 years; 80% female); United States | DBT with DBT-PE Protocol (DBT+PE; *n*=17) vs DBT (average treatment length = 17.2 months; *n*=13) | DBT+ PE: DBE-PE Protocol implemented when patients were ready; treatment followed Harned et al. (2012).<br>DBT: All four modes of DBT. Clinician adherence to DBT, frequency and duration of DBT and ancillary treatments were not controlled, reflecting the usual practices of the agencies. |
| **DBT for Psychosis** | | | |
| Lawlor et al. (2022) | Psychotic disorders in adults (*N* = 75; mean age 44 years, 45% female); United Kingdom | 8-week DBT-informed skills training | Program was named as Managing Emotions Group (MEG). Group skills training (8 sessions; 90-min) covering three core skills of mindfulness, emotion regulation and distress tolerance. Session format largely followed standard DBT but was modified to include a recap of the previous session; homework review was shortened. The session length was shortened and content was paced in view of cognitive and attentional difficulties in this client population. Psychotic experiences could be discussed where relevant to skill use. |
| **DBT for Substance Use Disorders (SUD)** | | | |
| Linehan et al. (1999) | Co-occurring BPD and SUD (for opiates, cocaine, amphetamines, anxiolytics, sedatives, hypnotics) or Polysubstance Use Disorder (*N*=28; mean age 30.4 years; 100% female); United States | 1-year DBT-SUD (*n*=12) vs TAU (other mental health and/or substance abuse programs in the community, or continuation with psychotherapists; *n*=15) | Standard DBT provided with several additions: 'attachment' strategies, 'dialectical abstinence' (dialectical approach to drug use), and 'transitional maintenance' (protocol for replacement medication pharmacotherapy, i.e., three 4-month phases of drug maintenance, drug tapering, no-drug replacement to transit substance abusers through skills acquisition, skills strengthening and skills generalization). |

***(continued on p.256)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Dimeff et al. (2000) | Methamphetamine-dependence with BPD (*N*=3; mean age 27.7 years; 100% female); United States | 1-year DBT-SUD | Building on Linehan et al. (1999); modified-skills group (90 mins skills acquisition, then 30- to 40 mins individual skills consultation). Detailed treatment description, introducing the substance abuse behavioural hierarchy, attachment strategies (for patients with episodic engagement in therapy), dialectical abstinence, 'clear mind' (mindfulness skill) and six new skills incorporated into the 4 skills modules. |
| Linehan et al. (2002) | Heroin dependence with BPD (*N*=23; mean age 36.1 years; 100% females); United States | 1-year DBT-SUD (*n*=11) vs Comprehensive Validation Therapy with 12-Steps (CVT+12S; *n*=12) | DBT-SUD: Followed Linehan et al. (1999).<br>CVT+12S: Developed to employ acceptance-based strategies (utilized in DBT) combined with a 12-Step program (like Narcotics Anonymous), in the absence of existing interventions for substance abusers with BPD |
| Azizi et al. (2010) | Opioid dependence (*N*=39; mean age 26.68 years; 0% female); Iran | 10-week DBT mindfulness and ER training + naltrexone vs cognitive group therapy + naltrexone vs naltrexone-only (*n*=13 in each condition) | DBT-based group: Focused on mindfulness and ER skills.<br>Cognitive therapy group: Focused on replacing drug-related dysfunctional beliefs with more adaptive beliefs.<br>Both experimental groups had 10x90 mins sessions. |
| Axelrod et al. (2011) | Substance dependence and BPD (*N*=27; mean age 38.0 years; 100% female); United States | 20-week DBT (standard treatment at a community substance abuse facility) | Shortened from standard DBT due to 'practical constraints' (Axelrod et al., 2011, p.39). All DBT modes provided over 20 weeks. Substance use prioritized as a quality-of-life-interfering-behaviour in treatment target hierarchy. |
| Maffei et al. (2018) | Alcohol-dependence (*N*=244; 79% inpatients, 21% outpatients; mean age 47.14 years; 38.9% female); Italy | 3-month DBT skills training (DBT-ST) | DBT-ST as a stand-alone treatment (group sizes of 5–10). 36 group sessions (3h/session; total 108h) spanned across two phases: i) intensive (5 sessions/week, 1 month), ii) post-intensive (2 sessions/week, subsequent 2 months). If hospitalized, the intensive phase was provided inpatient and the post-intensive phase was provided outpatient. First session hour was clinical assessment and self-reports/ structured interviews, followed by 2h of skills. The program and specific DBT skills for SUDs are described, and the sessions covered the following topics: dialectical abstinence (sessions 1–2); the path to 'clear mind' (sessions 3–6); mindfulness (sessions 7–18); distress tolerance (sessions 19–24); emotion regulation (sessions 25–36). |

***(continued on p.257)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| Wilks et al. (2018) | Individuals with suicidal ideation in the past month, heavy episodic drinking and high emotion dysregulation (*N*=59; mean age 38.0 years; 69.5% female); United States | 8-week iDBT-ST (*n*=30) vs waitlist | iDBT-ST as a stand-alone treatment (group sizes of 5–10; 30–50 mins/session); 8 modules (30–50 mins/session) each covering 2–3 skills, each introduced via a 3–7 min video clip, followed by a 'key point' page, then guided practice. Participants selected a homework practice at the end. Topics covered: mindfulness skills (sessions 1–2); reducing problematic drinking (sessions 3–4); emotion regulation skills (sessions 5–7); distress tolerance (session 8). |
| Cavicchioli et al. (2019) | Alcohol use disorder (AUD) in adults (*N*=108; mean age 48.43 years; 40.7% female); Italy | 3-month DBT skills training | Replication study of Maffei et al.'s (2018) open trial; same DBT-ST program with minor differences i.e., structured interviews were ruled out and individual clinical management was conducted with each participant 2x/month (group sizes of 5–10). |
| Flynn et al. (2019) | Individuals with a dual diagnosis of SUD (for alcohol, sedatives / stimulants, cannabis and opioids) and either PD, depression, bipolar, anxiety and mood disorders (*N*=63; no information on mean age [mode age range 35–44 years]; 61.90% female); Ireland | 24 weeks DBT skills training | DBT-ST as a stand-alone treatment (group sizes of 5–10). Three modules comprised distress tolerance, emotion regulation and interpersonal effectiveness skills (6, 7 and 5 sessions respectively). Each module each also contained an additional two sessions for mindfulness training. Worksheets were used instead of diary cards. |
| Cavicchioli et al. (2020) | AUD in adults (*N*=171; mean age 47.92 years; 39.2 % female); Italy | 3-month DBT skills training | Replication study of Maffei et al.'s (2018) open trial; same DBT-ST program as in Cavicchioli et al. (2019). |

***(continued on p.258)***

**Table D1 (Continued)**

| Authors | Population Demographics | Experimental Group(s) | Known Adaptations |
|---|---|---|---|
| **DBT for Trichotillomania (excluding single-case studies)** | | | |
| Keuthen et al. (2010) | Trichotillomania in adults (*N*=10; mean age 30.50 years; 100% female); United States | 3-month DBT-enhanced CBT | Program was referred to as the DBT-enhanced CBT. Weekly individual sessions (50 mins) in an acute phase followed by 4 booster sessions in a maintenance phase. Habit reversal training with DBT skills training. DBT skills taught did not include interpersonal effectiveness. Topics covered: psychoeducation, motivational interviewing, chain analysis and self-monitoring (session 1); competing response, stimulus control procedures and prevention training (session 2); mindfulness (sessions 3–5); emotion regulation (sessions 6–8); distress tolerance (session 9–10); relapse prevention (session 11); maintenance and relapse prevention (sessions 12–15). |
| Keuthen et al. (2011) | Trichotillomania in adults (*N*=10; mean age 30.50 years; 100% female); same sample as in Harned et al. (2014) | 3-month DBT-enhanced CBT | DBT-enhanced CBT protocol followed Keuthen et al. (2010). |
| Keuthen et al. (2012) | Trichotillomania in adults (*N*=38; mean age 30.71 years; 81.58% female); same sample as in Harned et al. (2014) | DBT-enhanced CBT (*n*=20) vs minimal attention control (MAC; *n*=18) | DBT-enhanced CBT protocol followed Keuthen et al. (2010). |

## Appendix E

## Full Questionnaire Battery for Study 1

Participant No.: _____

Date: _____

2) Age: _____ *(in years)*

2) Sex *(indicate where appropriate)*:
☐ Male ☐ Female

3) What is your racial or ethnic origin?
☐ Chinese ☐ Malay ☐ Indian ☐ Eurasian Other: _____ *(please specify)*

4) How many years of education have you completed? _____ *(in years)*

5) What is your marital status?
☐ Single ☐ In a relationship but not living together ☐ Cohabiting ☐ Married ☐ Separated/ divorced
☐ Widow/widower

6) What is your occupation (even if currently unemployed)? _____

7) Have you ever been hospitalized for emotion problems?
☐ Yes ☐ No (proceed to Qn. 9)

8) If yes to Qn. 7, what were you hospitalized for? (Tick off all applicable)
☐ Anxiety ☐Depression ☐ Suicide ☐ Alcohol or chemical dependence ☐ Psychosis
☐ Other: _____ *(please specify)*

9) How many times have you received treatment, therapy or counselling for mental, emotional or family problems?
_____ *(please estimate number of sessions)*

10) Did you receive medication for nerves, depression or emotional problems?
☐ Yes ☐ No
*If yes, please list all:*
_____

11) Is there a family history of psychological concerns?
☐ Yes ☐ No
*If yes, please specify:*
_____

12) How would you rate your social support (family, friends, etc.)?
☐ Extremely unsupportive
☐ A little supportive
☐ Somewhat supportive
☐ Quite supportive
☐ Very supportive

FMI Sample Items

| Please consider the past one week as the time-frame to consider each item. Provide an answer for every statement as best as you can. Please answer as honestly and spontaneously as possible. There are neither 'right' not 'wrong' answers, nor 'good' or 'bad' responses. What is important to us is your own personal experience. | **Almost Never** | **Sometimes** | **Often** | **Almost Always** |
|---|---|---|---|---|
| 1. I am open to the experience of the present moment. | 1 | 2 | 3 | 4 |
| 2. I sense my body, whether eating, cooking, cleaning or talking. | 1 | 2 | 3 | 4 |
| 3. When I notice an absence of mind, I gently return to the experience of the here and now. | 1 | 2 | 3 | 4 |

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DERS

Please indicate how often the following statements apply to you by writing the appropriate number (1 – 5) from the scale below on the line beside each item.

| **1** Almost never (0-10%) | **2** Sometimes (11-35%) | **3** About half the time (36-65%) | **4** Most of the time (66-90%) | **5** Almost always (91-100%) |
|---|---|---|---|---|

_____ 1) I am clear about my feelings.
_____ 2) I pay attention to how I feel.
_____ 3) I experience my emotions as overwhelming and out of control.
_____ 4) I have no idea how I am feeling.
_____ 5) I have difficulty making sense out of my feelings.
_____ 6) I am attentive to my feelings.
_____ 7) I know exactly how I am feeling.
_____ 8) I care about what I am feeling.
_____ 9) I am confused about how I feel.
_____ 10) When I'm upset, I acknowledge my emotions.
_____ 11) When I'm upset, I become angry with myself for feeling that way.
_____ 12) When I'm upset, I become embarrassed for feeling that way.
_____ 13) When I'm upset, I have difficulty getting work done.
_____ 14) When I'm upset, I become out of control.
_____ 15) When I'm upset, I believe that I will remain that way for a long time.
_____ 16) When I'm upset, I believe that I will end up feeling very depressed.
_____ 17) When I'm upset, I believe that my feelings are valid and important.
_____ 18) When I'm upset, I have difficulty focusing on other things.
_____ 19) When I'm upset, I feel out of control.
_____ 20) When I'm upset, I can still get things done.
_____ 21) When I'm upset, I feel ashamed at myself for feeling that way.
_____ 22) When I'm upset, I know that I can find a way to eventually feel better.
_____ 23) When I'm upset, I feel like I am weak.
_____ 24) When I'm upset, I feel like I can remain in control of my behaviors.
_____ 25) When I'm upset, I feel guilty for feeling that way.
_____ 26) When I'm upset, I have difficulty concentrating.
_____ 27) When I'm upset, I have difficulty controlling my behaviors.
_____ 28) When I'm upset, I believe there is nothing I can do to make myself feel better.
_____ 29) When I'm upset, I become irritated at myself for feeling that way.
_____ 30) When I'm upset, I start to feel very bad about myself.
_____ 31) When I'm upset, I believe that wallowing in it is all I can do.
_____ 32) When I'm upset, I lose control over my behavior.
_____ 33) When I'm upset, I have difficulty thinking about anything else.
_____ 34) When I'm upset, I take time to figure out what I'm really feeling.
_____ 35) When I'm upset, it takes me a long time to feel better.
_____ 36) When I'm upset, my emotions feel overwhelming.

Source: https://doi.org/10.1023/B:JOBA.0000007455.08539.94

BSL-95 Sample Items

In the following table you will find a set of difficulties and problems which possibly describe you. Please work through the questionnaire and decide how much you suffered from each problem in the course of the last week. In case you have no feelings at all at the present moment, please answer according to how you *think you might have felt*. Please answer honestly. **All questions refer to the last week. If you felt different ways at different times in the week, give a rating for how things were for you on average.** Please be sure to answer each question.

| **In the course of last week…** | **Not at all** | **A little** | **Rather** | **Much** | **Very strong** |
|---|---|---|---|---|---|
| 1. I felt stressed out | 0 | 1 | 2 | 3 | 4 |
| 2. I suffered from insomnia | 0 | 1 | 2 | 3 | 4 |

Now we would like to know in addition the quality of your **overall** personal state in the course of the last week. 0% means **absolutely down**, 100% means **excellent**. Please check the percentage which comes closest.

| **0%** | **10%** | **20%** | **30%** | **40%** | **50%** | **60%** | **70%** | **80%** | **90%** | **100%** |
|---|---|---|---|---|---|---|---|---|---|---|
| (very bad) ⟵ ⟶ (excellent) | | | | | | | | | | |

| **During the last week…** | **Not at all** | **Once** | **2-3 times** | **4-6 times** | **Daily or more often** |
|---|---|---|---|---|---|
| 1. I hurt myself by cutting, burning, strangling, headbanging etc. | 0 | 1 | 2 | 3 | 4 |
| 2. I told other people that I was going to kill myself | 0 | 1 | 2 | 3 | 4 |

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Available at: https://www.zi-mannheim.de/fileadmin/user_upload/downloads/forschung/PSM_downloads/BSL_95_english_02_2008.pdf

DASS-21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

*The rating scale is as follows:*

**0** Did not apply to me at all
**1** Applied to me to some degree, or some of the time
**2** Applied to me to a considerable degree, or a good part of time
**3** Applied to me very much, or most of the time

| | | | | |
|---|---|---|---|---|
| 1. I found it hard to wind down | 0 | 1 | 2 | 3 |
| 2. I was aware of dryness of my mouth | 0 | 1 | 2 | 3 |
| 3. I couldn't seem to experience any positive feeling at all | 0 | 1 | 2 | 3 |
| 4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion) | 0 | 1 | 2 | 3 |
| 5. I found it difficult to work up the initiative to do things | 0 | 1 | 2 | 3 |
| 6. I tended to over-react to situations | 0 | 1 | 2 | 3 |
| 7. I experienced trembling (e.g., in the hands) | 0 | 1 | 2 | 3 |
| 8. I felt that I was using a lot of nervous energy | 0 | 1 | 2 | 3 |
| 9. I was worried about situations in which I might panic and make a fool of myself | 0 | 1 | 2 | 3 |
| 10. I felt that I had nothing to look forward to | 0 | 1 | 2 | 3 |
| 11. I found myself getting agitated | 0 | 1 | 2 | 3 |
| 12. I found it difficult to relax | 0 | 1 | 2 | 3 |
| 13. I felt down-hearted and blue | 0 | 1 | 2 | 3 |
| 14. I was intolerant of anything that kept me from getting on with what I was doing | 0 | 1 | 2 | 3 |
| 15. I felt I was close to panic | 0 | 1 | 2 | 3 |
| 16. I was unable to become enthusiastic about anything. | 0 | 1 | 2 | 3 |
| 17. I felt I wasn't worth much as a person | 0 | 1 | 2 | 3 |
| 18. I felt that I was rather touchy | 0 | 1 | 2 | 3 |
| 19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increasing, heart missing a beat) | 0 | 1 | 2 | 3 |
| 20. I felt scared without any good reason. | 0 | 1 | 2 | 3 |
| 21. I felt that life was meaningless | 0 | 1 | 2 | 3 |

Available at: https://dass.psy.unsw.edu.au/

ISS Sample Items

Below is a list of statements describing feelings or experiences that you may have from time to time or that are familiar to you because you have had these feelings and experiences for a long time. Most of these statements describe feelings and experiences that are generally painful or negative in some way. Some people will seldom or never have had many of these feelings. Everyone has had some of these feelings at some time, but if you find that these statements describe the way you feel a good deal of the time it can be painful just reading them. Try to be as honest as you can in responding.

| Read each statement carefully and select the word that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. | **Never** | **Seldom** | **Sometimes** | **Frequently** | **Almost always** |
|---|---|---|---|---|---|
| 1. I feel like I am never quite good enough. | 0 | 1 | 2 | 3 | 4 |
| 2. I feel somehow left out. | 0 | 1 | 2 | 3 | 4 |
| 3. I think that people look down on me. | 0 | 1 | 2 | 3 | 4 |

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Available at: https://doi.org/10.1300/J020v04n02_12

DBT-WCCL

The items below represent ways that you may have coped with stressful events in your life. We are interested in the degree to which you have used each of the following thoughts or behavior to deal with problems and stresses.

Think back on the **LAST ONE MONTH** in your life. Then check the appropriate number if the thought/behaviour is: never used, rarely used, sometimes used, or regularly used (i.e., at least 4 to 5 times per week). Don't answer on the basis of whether it seems to work to reduce stress or solve problems – just whether or not you use the coping behaviour. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

| **I have:** | **Never Used** | **Rarely Used** | **Sometimes Used** | **Regularly Used** |
|---|---|---|---|---|
| 1. Bargained or compromised to get something positive from the situation | 0 | 1 | 2 | 3 |
| 2. Counted my blessings | 0 | 1 | 2 | 3 |
| 3. Blamed myself | 0 | 1 | 2 | 3 |
| 4. Concentrated on something good that could come out of the whole thing | 0 | 1 | 2 | 3 |
| 5. Kept my feelings to myself | 0 | 1 | 2 | 3 |
| 6. Made sure I'm responding in a way that doesn't alienate others | 0 | 1 | 2 | 3 |
| 7. Figured out who to blame | 0 | 1 | 2 | 3 |
| 8. Hoped a miracle would happen | 0 | 1 | 2 | 3 |
| 9. Tried to get centered before taking any action | 0 | 1 | 2 | 3 |
| 10. Talked to someone about how I've been feeling | 0 | 1 | 2 | 3 |
| 11. Stood my ground and fought for what I wanted | 0 | 1 | 2 | 3 |
| 12. Refused to believe that it had happened | 0 | 1 | 2 | 3 |
| 13. Treated myself to something really tasty | 0 | 1 | 2 | 3 |
| 14. Criticized or lectured myself | 0 | 1 | 2 | 3 |
| 15. Took it out on others | 0 | 1 | 2 | 3 |
| 16. Came up with a couple of different solutions to my problem | 0 | 1 | 2 | 3 |
| 17. Wished I were a stronger person – more optimistic and forceful | 0 | 1 | 2 | 3 |
| 18. Accepted my strong feelings, but not let them interfere with other things too much | 0 | 1 | 2 | 3 |
| 19. Focused on the good things in my life | 0 | 1 | 2 | 3 |
| 20. Wished that I could change that way that I feel | 0 | 1 | 2 | 3 |
| 21. Found something beautiful to look at to make me feel better | 0 | 1 | 2 | 3 |
| 22. Changed something about myself so that I could deal with the situation better | 0 | 1 | 2 | 3 |
| 23. Focused on the good aspects of my life and gave less attention to negative thoughts or feelings | 0 | 1 | 2 | 3 |
| 24. Got mad at the people or things that caused the problem | 0 | 1 | 2 | 3 |
| 25. Felt bad that I couldn't avoid the problem | 0 | 1 | 2 | 3 |
| 26. Tried to distract myself by getting active | 0 | 1 | 2 | 3 |
| 27. Been aware of what has to be done, so I've been doubling my efforts and trying harder to make things work | 0 | 1 | 2 | 3 |
| 28. Thought that others were unfair to me | 0 | 1 | 2 | 3 |
| 29. Soothed myself by surrounding myself with a nice fragrance of some kind | 0 | 1 | 2 | 3 |
| 30. Blamed others | 0 | 1 | 2 | 3 |
| 31. Listened to or played music that I found relaxing | 0 | 1 | 2 | 3 |

| **I have:** | **Never Used** | **Rarely Used** | **Sometimes Used** | **Regularly Used** |
|---|---|---|---|---|
| 32. Gone on as if nothing had happened | 0 | 1 | 2 | 3 |
| 33. Accepted the next best thing to what I wanted | 0 | 1 | 2 | 3 |
| 34. Told myself things could be worse | 0 | 1 | 2 | 3 |
| 35. Occupied my mind with something else | 0 | 1 | 2 | 3 |
| 36. Talked to someone who could do something concrete about the problem | 0 | 1 | 2 | 3 |
| 37. Tried to make myself feel better by eating, drinking, smoking, taking medications, etc | 0 | 1 | 2 | 3 |
| 38. Tried not to act too hastily or follow my own hunch | 0 | 1 | 2 | 3 |
| 39. Changed something so things would turn out right | 0 | 1 | 2 | 3 |
| 40. Pampered myself with something that felt good to the touch (e.g., a bubble bath or a hug) | 0 | 1 | 2 | 3 |
| 41. Avoided people | 0 | 1 | 2 | 3 |
| 42. Thought how much better off I was than others | 0 | 1 | 2 | 3 |
| 43. Just took things one step at a time | 0 | 1 | 2 | 3 |
| 44. Did something to feel a totally different emotion (like gone to a funny movie) | 0 | 1 | 2 | 3 |
| 45. Wished the situation would go away or somehow be finished | 0 | 1 | 2 | 3 |
| 46. Kept others from knowing how bad things were | 0 | 1 | 2 | 3 |
| 47. Focused my energy on helping others | 0 | 1 | 2 | 3 |
| 48. Found out what other person was responsible | 0 | 1 | 2 | 3 |
| 49. Made sure to take care of my body and stay healthy so that I was less emotionally sensitive | 0 | 1 | 2 | 3 |
| 50. Told myself how much I had already accomplished | 0 | 1 | 2 | 3 |
| 51. Made sure I respond in a way so that I could still respect myself afterwards | 0 | 1 | 2 | 3 |
| 52. Wished that I could change what had happened | 0 | 1 | 2 | 3 |
| 53. Made a plan of action and followed it | 0 | 1 | 2 | 3 |
| 54. Talked to someone to find out about the situation | 0 | 1 | 2 | 3 |
| 55. Avoided my problem | 0 | 1 | 2 | 3 |
| 56. Stepped back and tried to see things as they really are | 0 | 1 | 2 | 3 |
| 57. Compared myself to others who are less fortunate | 0 | 1 | 2 | 3 |
| 58. Increased the number of pleasant things in my life so that I had a more positive outlook | 0 | 1 | 2 | 3 |
| 59. Tried not to burn my bridges behind me, but leave things open somewhat | 0 | 1 | 2 | 3 |

Available at: https://depts.washington.edu/uwbrtc/resources/assessment-instruments/

RSES

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle ***SA***; if you agree with the statement, circle ***A***; if you disagree, circle ***D***; and, if you strongly disagree, circle ***SD.***

| | | | | |
|---|---|---|---|---|
| 1. On the whole, I am satisfied with myself | SA | A | D | SD |
| 2. At times, I think I am no good at all. | SA | A | D | SD |
| 3. I feel that I have a number of good qualities | SA | A | D | SD |
| 4. I am able to do things as well as most other people | SA | A | D | SD |
| 5. I feel I do not have much to be proud of | SA | A | D | SD |
| 6. I certainly feel useless at times | SA | A | D | SD |
| 7. I feel that I'm a person of worth, at least equal to others | SA | A | D | SD |
| 8. I wish I could have more respect for myself | SA | A | D | SD |
| 9. All in all, I am inclined to feel that I'm a failure | SA | A | D | SD |
| 10. I take a positive attitude toward myself | SA | A | D | SD |

Source: Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.

Available at: https://socy.umd.edu/about-us/using-rosenberg-self-esteem-scale

IIP-32 Sample Items

It is hard for me to:

Understand another person's point of view

Be firm when I need to be

The following are things that you do too much:

I try to control other people too much.

I tell personal things to other people too much.

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## Appendix F

**Table F1**

*Correlation matrix for measures administered at baseline (T1)*

| | Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | DERS | - | 0.56** | 0.69** | 0.49** | 0.62** | 0.37* | 0.64** | -0.14 | -0.35* | -0.31 | 0.57** | 0.17 | -0.55** |
| 2. | DASS-21 Depression | 0.56** | - | 0.51** | 0.58** | 0.81** | 0.40* | 0.78** | -0.38* | -0.51** | -0.16 | 0.43* | 0.43* | -0.38* |
| 3. | DASS-21 Anxiety | 0.69** | 0.51** | - | 0.56** | 0.65** | 0.57** | 0.50** | -0.13 | -0.22 | -0.15 | 0.50** | 0.29 | -0.37* |
| 4. | DASS-21 Stress | 0.49** | 0.58** | 0.56** | - | 0.82** | 0.55** | 0.57** | -0.01 | -0.36* | 0.02 | 0.55** | 0.63** | -0.36* |
| 5. | BSL-95 | 0.62** | 0.81** | 0.65** | 0.82** | - | 0.54** | 0.74** | -0.15 | -0.41* | 0.01 | 0.61** | 0.57** | -0.42* |
| 6. | IIP-32 Total (T-score) | 0.37* | 0.40** | 0.57** | 0.55** | 0.54** | - | 0.44** | 0.10 | -0.13 | -0.07 | 0.42* | 0.48** | -0.27 |
| 7. | ISS Shame | 0.64** | 0.78** | 0.50** | 0.57** | 0.74** | 0.44* | - | -0.18 | -0.41* | -0.03 | 0.56** | 0.51** | -0.44* |
| 8. | ISS Self-Esteem | -0.14 | -0.38** | -0.13 | -0.01 | -0.15 | 0.10 | -0.18 | - | 0.72** | 0.38* | -0.01 | 0.23 | 0.28 |
| 9. | RSES | -0.35* | -0.51** | -0.22 | -0.36* | -0.41* | -0.13 | -0.41* | 0.72** | - | 0.41 | -0.17 | -0.04 | 0.50** |
| 10. | DBT-WCCL DSS | -0.31 | -0.16 | -0.15 | 0.02 | 0.01 | -0.07 | -0.03 | 0.38* | 0.41* | - | 0.03 | 0.31 | 0.36* |
| 11. | DBT-WCCL DCS 1 | 0.57** | 0.43* | 0.50** | 0.55** | 0.61** | 0.42* | 0.56** | -0.01 | -0.17 | 0.03 | - | 0.54** | -0.49** |
| 12. | DBT-WCCL DCS 2 | 0.17 | 0.43* | 0.29 | 0.63** | 0.57** | 0.48** | 0.51** | 0.23 | -0.04 | 0.31 | 0.54** | - | -0.30 |
| 13. | FMI | -0.55** | -0.38* | -0.37* | -0.36* | -0.42* | -0.27 | -0.44* | 0.28 | 0.50** | 0.36* | -0.49** | -0.30 | - |

*Note.* DERS = Difficulties in Emotion Regulation Scale; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = DBT skills subscale; DCS = Dysfunctional coping scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory. * indicates $p < .05$; ** indicates $p < .01$.

## Appendix G

## Examination of Missing Data

All missing data showed a person-level pattern of missingness, that is, 'failure by an individual to respond to any part of the survey' (Newman et al., 2014, p. 375). This is illustrated in Figures G1 and G2 below.

**Figure G1**

*Pattern of Missingness Across Primary Outcome Measures*

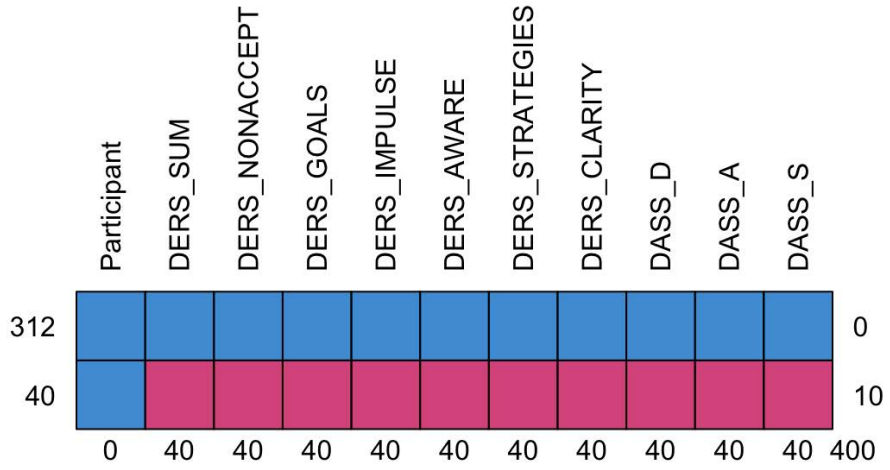
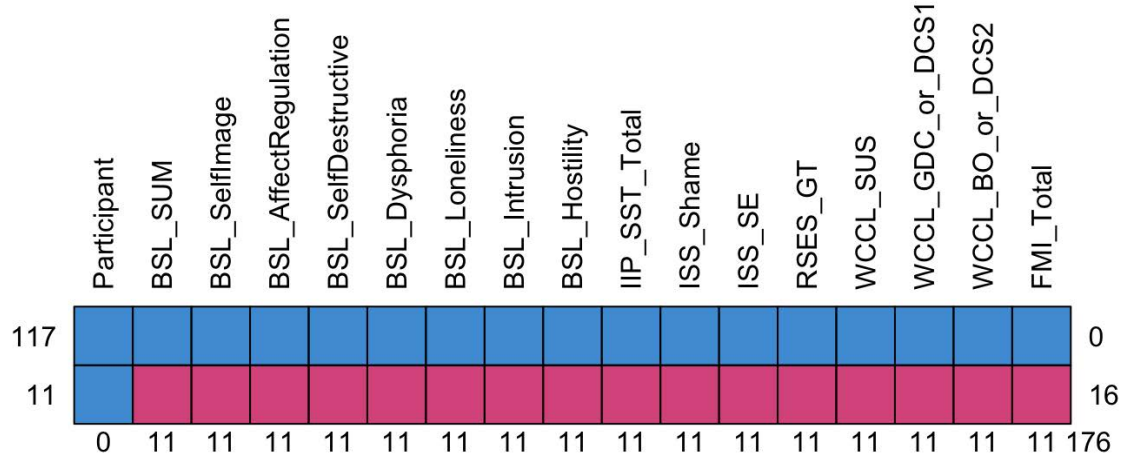



**Figure G2**

*Pattern of Missingness Across Secondary Outcome Measures*



This was first observed at assessment time point 2, followed by from time points 5 and onward. More information on specific missing-data patterns on the primary outcome measures administered across 11 time points are summarized in Table C1.

**Table G1**

*Number of Participants with Different Monotone Missing-Data Patterns Across Time 1 to 11*

| Pattern | *n* (% of participants with pattern of missingness) |
|---|---|
| oooooooooo | 21 (65.63%) |
| ooooooooxoo | 2 (6.25%) |
| oooooooxooo | 1 (3.13%) |
| ooooooxxxxx | 2 (6.25%) |
| oooooxxxxxx | 1 (3.13%) |
| ooooxooxxxx | 1 (3.13%) |
| oooooxxxxxx | 2 (6.25%) |
| oxoooooooo | 2 (6.25%) |

*Note.* o = assessment completed. X = missed assessment due to non-response.

Majority of the participants who dropped out of the clinical program also dropped out of the research program, except for 2 participants (see Figure 1 for details). In total, there were 312 observations and 40 missing observations (11.36% missed) for each primary outcome measure.

## Appendix H

## Mean Scores and Changes Over Time on All Outcome Measures

### Table H1

*Mean Scores and Changes on Outcome Measures for All Participants (Total Sample)*

| | Baseline | | Pre-Treatment | | | | Post-Treatment | | | | Follow-Up |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Outcome Measures** | **T1 (*n* = 32) Mean (*SD*)** | **T2 (*n*=30) Mean (*SD*)** | **T3 (*n*=32) Mean (*SD*)** | **T4 (*n*=32) Mean (*SD*)** | **T5 (*n*=29) Mean (*SD*)** | **T6 (*n*=29) Mean (*SD*)** | **T7 (*n*=27) Mean (*SD*)** | **T8 (*n*=25) Mean (*SD*)** | **T9 (*n*=24) Mean (*SD*)** | **T10 (*n*=26) Mean (*SD*)** | **T11 (*n*=26) Mean (*SD*)** |
| DERS Total | 126.03 (19.96) | 122.13 (21.09) | 121.53 (23.57) | 109.09 (24.87) | 98.10 (25.97) | 96.55 (27.01) | 91.78 (28.73) | 90.20 (27.87) | 86.62 (28.74) | 84.92 (29.58) | 85.35 (30.06) |
| DERS NONACCEPT | 21.72 (6.03) | 21.70 (6.23) | 21.59 (6.84) | 18.81 (6.52) | 16.83 (5.79) | 16.79 (6.27) | 15.78 (6.71) | 15.40 (6.73) | 14.92 (6.92) | 14.58 (7.12) | 14.81 (7.23) |
| DERS GOALS | 19.44 (3.84) | 18.80 (4.84) | 18.62 (4.54) | 17.09 (4.75) | 15.24 (5.01) | 14.97 (5.07) | 13.74 (4.84) | 14.44 (4.74) | 13.38 (4.48) | 13.08 (4.47) | 13.31 (4.74) |
| DERS IMPULSE | 21.34 (6.13) | 19.40 (5.43) | 19.25 (5.90) | 17.69 (6.05) | 15.24 (5.82) | 14.59 (5.62) | 13.89 (5.59) | 13.96 (5.81) | 13.54 (5.76) | 13.38 (6.05) | 12.62 (5.97) |
| DERS AWARE | 17.72 (5.02) | 18.47 (5.18) | 18.22 (5.32) | 16.97 (4.50) | 16.34 (5.28) | 15.72 (5.15) | 15.33 (5.48) | 14.32 (5.53) | 14.46 (4.75) | 13.77 (5.01) | 13.81 (6.14) |
| DERS STRATEGIES | 29.03 (6.93) | 27.67 (6.07) | 27.88 (6.80) | 25.03 (8.03) | 21.72 (7.35) | 21.69 (8.12) | 20.07 (8.33) | 19.76 (8.33) | 18.96 (8.22) | 18.50 (8.47) | 18.88 (8.59) |
| DERS CLARITY | 16.78 (4.14) | 16.10 (3.55) | 15.97 (3.46) | 13.50 (3.47) | 12.72 (3.70) | 12.79 (4.25) | 12.96 (5.00) | 12.32 (4.41) | 11.38 (4.01) | 11.62 (4.59) | 11.92 (5.04) |
| DASS-21 Depression | 25.44 (11.72) | 21.87 (9.17) | 23.44 (11.82) | 21.69 (10.10) | 17.38 (10.62) | 17.52 (10.43) | 16.44 (12.21) | 18.00 (11.17) | 15.83 (11.78) | 14.69 (13.48) | 15.00 (11.84) |
| DASS-21 Anxiety | 23.44 (11.63) | 19.07 (9.68) | 19.06 (11.79) | 17.69 (10.81) | 17.52 (10.15) | 15.59 (10.10) | 12.15 (8.82) | 14.64 (9.86) | 14.50 (11.64) | 14.38 (11.51) | 12.38 (10.31) |
| DASS-21 Stress | 25.00 (11.00) | 22.20 (9.66) | 23.38 (10.51) | 21.44 (9.49) | 19.38 (9.06) | 18.07 (10.64) | 16.67 (9.58) | 16.56 (8.57) | 17.83 (10.89) | 15.31 (10.10) | 14.38 (9.53) |
| BSL-95 Global Factor | 2.16 (0.85) | | 2.07 (0.85) | | | | 1.40 (0.67) | | | | 1.37 (0.85) |
| BSL-95 Self-Perception | 1.95 (0.96) | | 1.82 (0.90) | | | | 1.12 (0.71) | | | | 1.14 (0.98) |
| BSL-95 Affect Regulation | 2.48 (0.98) | | 2.35 (0.96) | | | | 1.66 (0.85) | | | | 1.57 (1.04) |
| BSL-95 Self-Destruction | 2.11 (1.07) | | 1.99 (1.16) | | | | 1.27 (0.99) | | | | 1.15 (1.04) |
| BSL-95 Dysphoria | 2.91 (0.53) | | 2.99 (0.57) | | | | 2.67 (0.58) | | | | 2.53 (0.60) |
| BSL-95 Loneliness | 2.21 (1.06) | | 2.20 (0.99) | | | | 1.40 (0.86) | | | | 1.41 (1.07) |
| BSL-95 Intrusion | 1.34 (1.04) | | 1.21 (0.91) | | | | 0.72 (0.57) | | | | 0.77 (0.79) |
| BSL-95 Hostility | 2.05 (1.06) | | 1.89 (1.04) | | | | 1.25 (0.87) | | | | 1.31 (1.01) |
| BSL-95 Global Well-Being | 43.44 (21.19) | | 46.25 (18.27) | | | | 55.56 (21.18) | | | | 56.54 (18.75) |
| IIP-32 Scale 1 T score | 66.12 (16.87) | | 61.88 (18.62) | | | | 60.00 (16.83) | | | | 58.19 (15.97) |
| IIP-32 Scale 2 T score | 58.69 (13.86) | | 60.25 (13.22) | | | | 55.59 (12.92) | | | | 52.38 (11.80) |
| IIP-32 Scale 3 T score | 62.84 (12.09) | | 63.22 (10.59) | | | | 58.44 (11.78) | | | | 54.42 (10.56) |
| IIP-32 Scale 4 T score | 68.22 (11.27) | | 65.41 (14.05) | | | | 62.59 (12.76) | | | | 59.00 (13.82) |
| IIP-32 Scale 5 T score | 64.19 (13.02) | | 66.03 (12.55) | | | | 59.37 (12.38) | | | | 60.62 (12.87) |
| IIP-32 Scale 6 T score | 65.62 (13.20) | | 65.16 (11.82) | | | | 58.33 (12.41) | | | | 58.88 (13.72) |
| IIP-32 Scale 7 T score | 67.38 (12.72) | | 63.72 (13.12) | | | | 56.89 (14.03) | | | | 56.27 (14.08) |
| IIP-32 Scale 8 T score | 74.00 (16.59) | | 68.97 (15.11) | | | | 64.22 (15.07) | | | | 60.31 (14.47) |
| IIP-32 Total T score | 71.72 (10.01) | | 70.09 (9.39) | | | | 63.07 (12.10) | | | | 60.19 (11.57) |
| ISS Internal Shame | 73.00 (15.52) | | 72.59 (16.83) | | | | 54.48 (20.95) | | | | 51.96 (22.98) |
| ISS Self-Esteem | 7.81 (4.20) | | 7.53 (3.82) | | | | 9.22 (4.41) | | | | 9.73 (4.59) |
| RSES | 8.69 (4.20) | | 8.88 (4.04) | | | | 12.30 (5.56) | | | | 13.62 (4.96) |
| DBT-WCCL DSS | 1.50 (0.36) | | 1.56 (0.41) | | | | 1.84 (0.47) | | | | 1.86 (0.41) |
| DBT-WCCL DCS | 1.98 (0.51) | | 2.04 (0.46) | | | | 1.77 (0.47) | | | | 1.62 (0.56) |
| DBT-WCCL DCS 1 | 2.17 (0.50) | | 2.21 (0.44) | | | | 1.89 (0.46) | | | | 1.76 (0.60) |
| DBT-WCCL DCS 2 | 1.51 (0.77) | | 1.60 (0.75) | | | | 1.48 (0.69) | | | | 1.26 (0.65) |
| FMI | 28.00 (6.19) | | 27.47 (5.18) | | | | 33.59 (6.91) | | | | 35.85 (6.72) |

## Table H2

*Mean Scores and Changes on Outcome Measures for Treatment Completers*

| | Baseline | | Pre-Treatment | | | | Post-Treatment | | | | Follow-Up |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Outcome Measures** | **T1 (*n* = 25) Mean (*SD*)** | **T2 (*n*=23) Mean (*SD*)** | **T3 (*n*=25) Mean (*SD*)** | **T4 (*n*=25) Mean (*SD*)** | **T5 (*n*=24) Mean (*SD*)** | **T6 (*n*=25) Mean (*SD*)** | **T7 (*n*=25) Mean (*SD*)** | **T8 (*n*=23) Mean (*SD*)** | **T9 (*n*=22) Mean (*SD*)** | **T10 (*n*=24) Mean (*SD*)** | **T11 (*n*=24) Mean (*SD*)** |
| DERS Total | 121.52 (20.15) | 117.65 (20.33) | 118.04 (22.96) | 103.96 (20.77) | 93.79 (21.03) | 91.76 (23.88) | 88.48 (26.33) | 86.30 (24.43) | 83.59 (25.67) | 81.67 (27.18) | 80.12 (24.29) |
| DERS NONACCEPT | 21.44 (6.56) | 21.04 (6.63) | 21.24 (6.98) | 18.20 (6.51) | 15.92 (5.42) | 16.16 (6.08) | 15.04 (6.25) | 14.61 (6.37) | 14.32 (6.53) | 13.88 (6.64) | 13.62 (6.14) |
| DERS GOALS | 18.96 (3.88) | 18.00 (4.31) | 17.80 (4.27) | 16.32 (4.29) | 14.71 (4.52) | 14.04 (4.59) | 13.16 (4.51) | 13.87 (4.34) | 13.05 (4.15) | 12.79 (4.34) | 12.54 (4.030 |
| DERS IMPULSE | 20.20 (6.22) | 18.22 (5.13) | 18.32 (5.44) | 16.40 (5.42) | 14.38 (4.99) | 13.64 (4.68) | 13.24 (5.08) | 13.26 (5.30) | 12.91 (5.34) | 12.62 (5.41) | 11.58 (4.79) |
| DERS AWARE | 17.36 (5.34) | 18.17 (5.53) | 18.12 (5.75) | 16.32 (4.63) | 15.79 (4.83) | 15.48 (5.46) | 15.16 (5.65) | 14.04 (5.64) | 14.18 (4.76) | 13.50 (5.13) | 13.62 (6.11) |
| DERS STRATEGIES | 27.72 (7.17) | 26.65 (5.94) | 26.84 (6.72) | 23.56 (7.10) | 20.50 (6.36) | 20.12 (7.27) | 19.24 (7.80) | 18.78 (7.58) | 18.09 (7.35) | 17.75 (8.09) | 17.54 (7.32) |
| DERS CLARITY | 15.84 (3.99) | 15.57 (3.58) | 15.72 (3.60) | 13.16 (3.68) | 12.50 (3.90) | 12.32 (4.24) | 12.64 (4.99) | 11.74 (4.06) | 11.05 (3.84) | 11.12 (4.31) | 11.21 (4.53) |
| DASS-21 Depression | 22.96 (11.56) | 20.09 (9.13) | 22.88 (12.25) | 20.08 (9.53) | 16.42 (10.06) | 16.00 (9.36) | 16.72 (12.10) | 17.65 (9.90) | 15.36 (11.30) | 14.17 (12.74) | 13.92 (10.93) |
| DASS-21 Anxiety | 20.88 (11.72) | 17.48 (9.29) | 18.56 (11.92) | 16.80 (9.85) | 16.58 (9.43) | 14.48 (8.47) | 11.92 (8.05) | 14.17 (8.94) | 14.00 (11.25) | 13.75 (10.19) | 10.92 (8.59) |
| DASS-21 Stress | 23.52 (10.46) | 20.78 (9.16) | 22.64 (10.14) | 20.96 (8.25) | 18.83 (8.32) | 16.96 (9.63) | 17.04 (9.24) | 16.52 (8.05) | 17.64 (10.52) | 15.08 (9.38) | 13.83 (9.36) |
| BSL-95 Global Factor | 2.03 (0.82) | | 2.03 (0.85) | | | | 1.40 (0.66) | | | | 1.26 (0.74) |
| BSL-95 Self-Perception | 1.81 (0.92) | | 1.76 (0.91) | | | | 1.10 (0.69) | | | | 1.00 (0.81) |
| BSL-95 Affect Regulation | 2.37 (0.95) | | 2.33 (0.96) | | | | 1.65 (0.81) | | | | 1.46 (0.96) |
| BSL-95 Self-Destruction | 1.98 (1.09) | | 1.99 (1.16) | | | | 1.29 (0.99) | | | | 1.03 (0.94) |
| BSL-95 Dysphoria | 2.90 (0.55) | | 3.02 (0.52) | | | | 2.68 (0.58) | | | | 2.52 (0.62) |
| BSL-95 Loneliness | 2.10 (1.01) | | 2.13 (1.04) | | | | 1.40 (0.87) | | | | 1.28 (0.99) |
| BSL-95 Intrusion | 1.16 (0.98) | | 1.15 (0.91) | | | | 0.73 (0.57) | | | | 0.64 (0.59) |
| BSL-95 Hostility | 1.97 (1.07) | | 1.83 (1.03) | | | | 1.23 (0.83) | | | | 1.21 (0.89) |
| BSL-95 Global Well-Being | 45.60 (21.42) | | 46.00 (18.48) | | | | 55.60 (22.00) | | | | 58.33 (18.34) |
| IIP-32 Scale 1 T score | 65.48 (17.07) | | 61.24 (17.11) | | | | 59.36 (17.27) | | | | 57.71 (16.03) |
| IIP-32 Scale 2 T score | 56.04 (11.73) | | 59.80 (13.11) | | | | 53.92 (11.83) | | | | 50.12 (8.96) |
| IIP-32 Scale 3 T score | 61.08 (12.13) | | 63.72 (10.69) | | | | 57.40 (11.62) | | | | 53.21 (8.55) |
| IIP-32 Scale 4 T score | 68.12 (11.33) | | 67.84 (13.40) | | | | 62.36 (13.24) | | | | 58.75 (12.83) |
| IIP-32 Scale 5 T score | 64.00 (14.00) | | 66.56 (12.56) | | | | 59.08 (11.98) | | | | 60.29 (11.92) |
| IIP-32 Scale 6 T score | 65.92 (13.37) | | 64.88 (12.62) | | | | 57.80 (12.20) | | | | 57.96 (12.84) |
| IIP-32 Scale 7 T score | 65.32 (13.02) | | 62.56 (13.75) | | | | 55.36 (13.17) | | | | 55.38 (13.60) |
| IIP-32 Scale 8 T score | 72.44 (17.56) | | 67.60 (15.85) | | | | 63.32 (15.23) | | | | 60.25 (15.08) |
| IIP-32 Total T score | 70.12 (9.90) | | 70.04 (9.84) | | | | 61.88 (11.54) | | | | 59.25 (10.33) |
| ISS Internal Shame | 70.28 (15.84) | | 69.68 (17.63) | | | | 55.68 (18.39) | | | | 49.25 (21.51) |
| ISS Self-Esteem | 8.28 (4.25) | | 7.44 (3.84) | | | | 9.28 (4.56) | | | | 9.92 (4.72) |
| RSES | 9.40 (4.01) | | 9.20 (4.15) | | | | 12.36 (5.74) | | | | 13.96 (4.90) |
| DBT-WCCL DSS | 1.55 (0.38) | | 1.60 (0.43) | | | | 1.88 (0.45) | | | | 1.90 (0.40) |
| DBT-WCCL DCS | 1.94 (0.52) | | 1.99 (0.47) | | | | 1.76 (0.43) | | | | 1.58 (0.53) |
| DBT-WCCL DCS 1 | 2.13 (0.50) | | 2.17 (0.45) | | | | 1.88 (0.41) | | | | 1.73 (0.57) |
| DBT-WCCL DCS 2 | 1.47 (0.79) | | 1.53 (0.77) | | | | 1.47 (0.70) | | | | 1.22 (0.65) |
| FMI | 28.32 (6.77) | | 27.92 (5.40) | | | | 33.48 (6.89) | | | | 36.12 (6.73) |

DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS = Dysfunctional coping scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

# Appendix I

## Additional Tables for Study 1

### Table I1

*Results of the Linear Mixed-Effects Model utilizing ML Analyses for all Primary Outcomes – Total Sample*

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | df | *d* | *p* | Var. | SD | 95% CI |
| DERS | Intercept | 126.03 | 4.63 | 129.63–160.91 | 17.93 | 270 | 8.95 | <.001 | 377.93 | 19.44 | 15.01–25.18 |
| | Time 2 | -4.71 | 3.52 | -11.54–2.07 | -1.34 | 270 | -0.29 | .180 | | | |
| | Time 3 | -4.50 | 3.46 | -11.18–2.18 | -1.30 | 270 | -0.28 | .195 | | | |
| | Time 4 | -16.94 | 3.46 | -23.62– -10.25 | -4.89 | 270 | -1.04 | <.001 | | | |
| | Time 5 | -25.80 | 3.56 | -32.60– -18.83 | -7.21 | 270 | -1.58 | <.001 | | | |
| | Time 6 | -28.98 | 3.56 | -35.68– -21.90 | -8.07 | 270 | -1.77 | <.001 | | | |
| | Time 7 | -31.74 | 3.65 | -38.50– -24.42 | -8.62 | 270 | -1.94 | <.001 | | | |
| | Time 8 | -31.48 | 3.73 | -38.45– -24.03 | -8.36 | 270 | -1.92 | <.001 | | | |
| | Time 9 | -35.98 | 3.78 | -43.02– -28.43 | -9.45 | 270 | -2.20 | <.001 | | | |
| | Time 10 | -37.28 | 3.69 | -44.15– -29.90 | -10.03 | 270 | -2.28 | <.001 | | | |
| | Time 11 | -36.86 | 3.69 | -43.73– -29.48 | -9.92 | 270 | -2.26 | <.001 | | | |
| | Completers | -24.62 | 8.81 | -42.27– -6.98 | -2.79 | 30 | -1.52 | .009 | | | |
| | Residual | | | | | | | | 184.25 | 13.58 | 0–26.61 |
| DASS-D | Intercept | 31.25 | 3.49 | 24.51–37.99 | 8.95 | 270 | 4.08 | <.001 | 64.93 | 8.06 | 6.19–10.49 |
| | Time 2 | -3.59 | 1.82 | -7.11– -0.07 | -1.97 | 270 | -0.47 | .050 | | | |
| | Time 3 | -2.00 | 1.79 | -5.46–1.46 | -1.12 | 270 | -0.26 | .265 | | | |
| | Time 4 | -3.75 | 1.79 | -7.21– -0.29 | -2.09 | 270 | -0.49 | .037 | | | |
| | Time 5 | -7.37 | 1.85 | -10.94– -3.81 | -4.00 | 270 | -0.96 | .0001 | | | |
| | Time 6 | -7.40 | 1.85 | -10.97– -3.84 | -4.01 | 270 | -0.97 | .0001 | | | |
| | Time 7 | -7.74 | 1.89 | -11.38– -4.09 | -4.10 | 270 | -1.01 | .0001 | | | |
| | Time 8 | -5.81 | 1.93 | -9.54– -2.08 | -3.01 | 270 | -0.76 | .003 | | | |
| | Time 9 | -8.15 | 1.96 | -11.92– -4.38 | -4.17 | 270 | -1.06 | <.001 | | | |
| | Time 10 | -9.24 | 1.91 | -12.93– -5.56 | -4.84 | 270 | -1.21 | <.001 | | | |
| | Time 11 | -8.93 | 1.91 | -12.62– -5.25 | -4.70 | 270 | -1.17 | <.001 | | | |
| | Completers | -7.44 | 3.73 | -14.90–0.02 | -2.00 | 30 | -0.97 | .055 | | | |
| | Residual | | | | | | | | 49.35 | 7.03 | 6.47–7.63 |
| DASS-A | Intercept | 28.40 | 3.50 | 21.65–35.15 | 8.12 | 270 | 4.11 | <.001 | 71.06 | 8.43 | 6.52–10.90 |
| | Time 2 | -4.70 | 1.47 | -7.55– -1.58 | -3.19 | 270 | -0.68 | .002 | | | |
| | Time 3 | -4.38 | 1.45 | -8.55– -2.95 | -3.02 | 270 | -0.63 | .003 | | | |
| | Time 4 | -5.75 | 1.45 | -8.43– -2.67 | -3.97 | 270 | -0.83 | .0001 | | | |
| | Time 5 | -5.55 | 1.49 | -10.25– -4.49 | -3.72 | 270 | -0.80 | .0002 | | | |
| | Time 6 | -7.37 | 1.49 | -13.45– -7.56 | -4.94 | 270 | -1.07 | <.001 | | | |
| | Time 7 | -10.51 | 1.53 | -10.50– -4.47 | -6.88 | 270 | -1.52 | <.001 | | | |
| | Time 8 | -7.49 | 1.56 | -11.32– -5.21 | -4.79 | 270 | -1.08 | <.001 | | | |
| | Time 9 | -8.26 | 1.58 | -11.32– -5.21 | -5.22 | 270 | -1.20 | <.001 | | | |
| | Time 10 | -8.20 | 1.54 | -11.18– -5.22 | -5.31 | 270 | -1.19 | <.001 | | | |
| | Time 11 | -10.20 | 1.54 | -13.18– -7.22 | -6.60 | 270 | -1.48 | <.001 | | | |
| | Completers | -6.35 | 3.81 | -13.98–1.28 | -1.67 | 30 | -0.92 | .106 | | | |
| | Residual | | | | | | | | 32.25 | 5.68 | 5.23–6.17 |
| DASS-S | Intercept | 28.55 | 3.29 | 22.19–34.91 | 8.67 | 270 | 4.20 | <.001 | 61.01 | 7.81 | 6.02–10.14 |
| | Time 2 | -2.72 | 1.53 | -5.67–0.22 | -1.78 | 270 | -0.40 | .076 | | | |
| | Time 3 | -1.63 | 1.50 | -4.52–1.27 | -1.08 | 270 | -0.24 | .280 | | | |
| | Time 4 | -3.56 | 1.50 | -6.46– -0.67 | -2.37 | 270 | -0.52 | .018 | | | |
| | Time 5 | -5.06 | 1.55 | -8.05– -2.08 | -3.27 | 270 | -0.74 | .001 | | | |
| | Time 6 | -6.33 | 1.55 | -9.32– -3.35 | -4.09 | 270 | -0.93 | .0001 | | | |
| | Time 7 | -7.57 | 1.58 | -10.63– -4.52 | -4.79 | 270 | -1.11 | <.001 | | | |
| | Time 8 | -7.36 | 1.62 | -10.49– -4.24 | -4.55 | 270 | -1.08 | <.001 | | | |
| | Time 9 | -6.63 | 1.64 | -9.79– -3.47 | -4.05 | 270 | -0.98 | .0001 | | | |
| | Time 10 | -8.77 | 1.60 | -11.86– -5.68 | -5.48 | 270 | -1.29 | <.001 | | | |
| | Time 11 | -9.69 | 1.60 | -12.78– -6.60 | -6.06 | 270 | -1.43 | <.001 | | | |
| | Completers | -4.55 | 3.56 | -11.68– 2.59 | -1.28 | 30 | -0.67 | .212 | | | |
| | Residual | | | | | | | | 34.63 | 5.88 | 5.42–6.39 |

DERS = Difficulties in Emotion Regulation Scale; DASS-D = Depression, Anxiety and Stress Scale-21 – Depression scale; DASS-A = Depression, Anxiety and Stress Scale-21 – Anxiety scale; DASS-S = Depression, Anxiety and Stress Scale-21 – Stress scale.

**Table I2**

*Results of the Linear Mixed-Effects Model utilizing REML Analyses for all Primary Outcomes – Total Sample*

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DERS | Intercept | 145.27 | 8.19 | 129.13–161.39 | 17.73 | 270 | 8.73 | <.001 | 403.57 | 20.09 | 15.39–26.23 |
| | Time 2 | -4.73 | 3.52 | -11.66–2.19 | -1.35 | 270 | -0.28 | .180 | | | |
| | Time 3 | -4.50 | 3.46 | -11.31–2.31 | -1.30 | 270 | -0.27 | .195 | | | |
| | Time 4 | -16.94 | 3.46 | -23.74– -10.13 | -4.90 | 270 | -1.02 | <.001 | | | |
| | Time 5 | -25.71 | 3.56 | -32.72– -18.70 | -7.22 | 270 | -1.54 | <.001 | | | |
| | Time 6 | -28.79 | 3.56 | -35.81– -21.78 | -8.08 | 270 | -1.73 | <.001 | | | |
| | Time 7 | -31.46 | 3.64 | -38.64– -24.29 | -8.64 | 270 | -1.89 | <.001 | | | |
| | Time 8 | -31.24 | 3.73 | -38.58– -24.89 | -8.38 | 270 | -1.88 | <.001 | | | |
| | Time 9 | -35.73 | 3.78 | -43.16– -28.30 | -9.46 | 270 | -2.15 | <.001 | | | |
| | Time 10 | -37.03 | 3.69 | -44.29– -29.78 | -10.05 | 270 | -2.23 | <.001 | | | |
| | Time 11 | -36.61 | 3.69 | -43.86– -29.35 | -9.93 | 270 | -2.20 | <.001 | | | |
| | Completers | -24.62 | 8.92 | -42.83– -6.40 | -2.76 | 30 | -1.48 | .010 | | | |
| | Residual | | | | | | | | 191.18 | 13.83 | 12.71–15.04 |
| DERS NONACCEPT | Intercept | 24.38 | 2.06 | 20.32–28.44 | 11.83 | 270 | 5.28 | <.001 | 23.51 | 4.85 | 3.68–6.38 |
| | Time 2 | 0.25 | 1.08 | -1.87–2.38 | 0.23 | 270 | 0.05 | .815 | | | |
| | Time 3 | -0.13 | 1.06 | -2.21–1.96 | -0.12 | 270 | -0.03 | .906 | | | |
| | Time 4 | -2.91 | 1.06 | -4.99– -0.82 | -2.74 | 270 | -0.63 | .007 | | | |
| | Time 5 | -4.62 | 1.09 | -6.77– -2.47 | -4.23 | 270 | -1.00 | <.001 | | | |
| | Time 6 | 4.97 | 1.09 | -7.12– -2.81 | -4.54 | 270 | -1.08 | <.001 | | | |
| | Time 7 | 05.69 | 1.12 | -7.89– -3.49 | -5.09 | 270 | -1.23 | <.001 | | | |
| | Time 8 | -5.55 | 1.14 | -7.80– -3.30 | -4.85 | 270 | -1.20 | <.001 | | | |
| | Time 9 | -6.70 | 1.16 | -8.98– -4.42 | -5.79 | 270 | -1.45 | <.001 | | | |
| | Time 10 | -6.60 | 1.13 | -8.82– -4.37 | -5.84 | 270 | -1.43 | <.001 | | | |
| | Time 11 | -6.37 | 1.13 | -8.59– -4.14 | -5.63 | 270 | -1.38 | <.001 | | | |
| | Completers | -3.41 | 2.20 | -7.90– 1.08 | -1.55 | 30 | -0.74 | .132 | | | |
| | Residual | | | | | | | | 17.98 | 4.24 | 3.90–4.62 |
| DERS GOALS | Intercept | 22.46 | 1.52 | 19.46–25..45 | 14.75 | 270 | 7.36 | <.001 | 14.07 | 3.75 | 2.87–4.89 |
| | Time 2 | -0.78 | 0.63 | -2.03– 0.47 | -1.22 | 270 | -0.25 | .223 | | | |
| | Time 3 | -0.81 | 0.62 | -2.04–-.42 | -1.30 | 270 | -0.27 | .194 | | | |
| | Time 4 | -2.34 | 0.62 | -3.57– -1.12 | -3.76 | 270 | -0.77 | .0002 | | | |
| | Time 5 | -3.95 | 0.64 | -5.22– -2.69 | -6.15 | 270 | -1.30 | <.001 | | | |
| | Time 6 | -4.43 | 0.64 | -5.70– -3.17 | -6.89 | 270 | -1.45 | <.001 | | | |
| | Time 7 | -5.23 | 0.66 | -6.53– -3.94 | -7.96 | 270 | -1.71 | <.001 | | | |
| | Time 8 | -4.50 | 0.68 | -5.82– -3.17 | -6.69 | 270 | -1.47 | <.001 | | | |
| | Time 9 | -5.81 | 0.68 | -7.15– -4.47 | -8.53 | 270 | -1.90 | <.001 | | | |
| | Time 10 | -5.89 | 0.66 | -7.20– -4.58 | -8.86 | 270 | -1.93 | <.001 | | | |
| | Time 11 | -5.66 | 0.66 | -6.97– -4.35 | -8.51 | 270 | -1.85 | <.001 | | | |
| | Completers | -3.86 | 1.66 | -7.26– -0.47 | -2.33 | 30 | -1.27 | .027 | | | |
| | Residual | | | | | | | | 6.22 | 2.49 | 2.29–2.71 |
| DERS IMPULSE | Intercept | 25.80 | 1.86 | -22.13–29.46 | 13.86 | 270 | 7.01 | <.001 | 21.22 | 4.61 | 3.53–6.00 |
| | Time 2 | -2.05 | 0.75 | -3.53– -0.57 | -2.73 | 270 | -0.56 | .007 | | | |
| | Time 3 | -2.09 | 0.74 | -3.55– -0.64 | -2.83 | 270 | -0.57 | .005 | | | |
| | Time 4 | -3.66 | 0.74 | -5.11– -2.20 | -4.95 | 270 | -0.99 | <.001 | | | |
| | Time 5 | -5.68 | 0.76 | -7.18– -4.18 | -7.46 | 270 | -1.54 | <.001 | | | |
| | Time 6 | -6.61 | 0.76 | -8.11– -5.11 | -8.68 | 270 | -1.80 | <.001 | | | |
| | Time 7 | -6.75 | 0.78 | -8.28– -5.22 | -8.67 | 270 | -1.83 | <.001 | | | |
| | Time 8 | -6.39 | 0.80 | -7.96– -4.83 | -8.02 | 270 | -1.74 | <.001 | | | |
| | Time 9 | -7.16 | 0.81 | -8.75– -5.57 | -8.88 | 270 | -1.95 | <.001 | | | |
| | Time 10 | -7.09 | 0.79 | -8.64– -5.54 | -9.01 | 270 | -1.93 | <.001 | | | |
| | Time 11 | -7.86 | 0.79 | -9.41– -6.31 | -9.98 | 270 | -2.14 | <.001 | | | |
| | Completers | -5.70 | 2.04 | -9.85– -1.54 | -2.80 | 30 | -1.55 | .009 | | | |
| | Residual | | | | | | | | 8.73 | 2.95 | 2.72–3.21 |

***(continued on p. 278)***

**Table I2 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DERS AWARE | Intercept | 19.17 | 1.77 | 15.69–22.65 | 10.85 | 270 | 5.50 | <.001 | 19.15 | 4.38 | 3.36–5.70 |
| | Time 2 | 0.38 | 0.71 | -1.02–1.78 | 0.54 | 270 | 0.11 | .593 | | | |
| | Time 3 | 0.50 | 0.70 | -0.87–1.87 | 0.72 | 270 | 0.14 | .474 | | | |
| | Time 4 | -0.75 | 0.70 | -2.12–0.62 | -1.08 | 270 | -0.22 | .283 | | | |
| | Time 5 | -1.06 | 0.72 | -2.48–0.35 | -1.48 | 270 | -0.30 | .140 | | | |
| | Time 6 | -1.88 | 0.72 | -3.29– -0.46 | -2.61 | 270 | -0.54 | .010 | | | |
| | Time 7 | -2.16 | 0.73 | -3.61– -0.72 | -2.95 | 270 | -0.62 | .004 | | | |
| | Time 8 | -2.85 | 0.75 | -4.33– -1.37 | -3.79 | 270 | -0.82 | .0002 | | | |
| | Time 9 | -2.35 | 0.76 | -3.85– -0.85 | -3.08 | 270 | -0.67 | .002 | | | |
| | Time 10 | -3.43 | 0.74 | -4.90– -1.97 | -4.62 | 270 | -0.99 | <.001 | | | |
| | Time 11 | -3.40 | 0.74 | -4.86– -1.93 | -4.57 | 270 | -0.97 | <.001 | | | |
| | Completers | -1.85 | 1.93 | -5.80–2.09 | -0.96 | 30 | -0.53 | .345 | | | |
| | Residual | | | | | | | | 7.77 | 2.79 | 2.56–3.03 |
| DERS STRATEGIES | Intercept | 34.55 | 2.49 | 29.65–39.45 | 13.89 | 270 | 7.03 | <.001 | 37.94 | 6.16 | 4.73–8.03 |
| | Time 2 | -1.71 | 1.00 | -3.68–0.27 | -1.71 | 270 | -0.35 | .090 | | | |
| | Time 3 | -1.16 | 0.99 | -3.10–0.78 | -1.17 | 270 | -0.24 | .242 | | | |
| | Time 4 | -4.00 | 0.99 | -5.94– -2.06 | -4.06 | 270 | -0.81 | .0001 | | | |
| | Time 5 | -6.60 | 1.02 | -8.60– -4.60 | -6.50 | 270 | -1.34 | <.001 | | | |
| | Time 6 | -7.10 | 1.02 | -9.10– -5.10 | -6.99 | 270 | -1.44 | <.001 | | | |
| | Time 7 | -8.07 | 1.04 | -10.11– -6.02 | -7.77 | 270 | -1.64 | <.001 | | | |
| | Time 8 | -7.91 | 1.06 | -10.01– -5.82 | -7.45 | 270 | -1.61 | <.001 | | | |
| | Time 9 | -9.00 | 1.08 | -11.12– -6.88 | -8.36 | 270 | -1.83 | <.001 | | | |
| | Time 10 | -9.28 | 1.05 | -11.35– -7.21 | -8.83 | 270 | -1.89 | <.001 | | | |
| | Time 11 | -8.89 | 1.05 | -10.96– -6.82 | -8.47 | 270 | -1.81 | <.001 | | | |
| | Completers | -7.07 | 2.72 | -12.62– -1.51 | -2.60 | 30 | -1.44 | .014 | | | |
| | Residual | | | | | | | | 15.53 | 3.94 | 3.62–4.29 |
| DERS CLARITY | Intercept | 18.94 | 1.30 | 16.39–21.49 | 14.62 | 270 | 6.73 | <.001 | 9.56 | 3.09 | 2.36–4.05 |
| | Time 2 | -0.84 | 0.64 | -2.10–0.42 | -1.32 | 270 | -0.30 | .190 | | | |
| | Time 3 | -0.81 | 0.63 | -2.05–0.42 | -1.29 | 270 | -0.29 | .197 | | | |
| | Time 4 | -3.28 | 0.63 | -4.52– -2.04 | -5.22 | 270 | -1.17 | <.001 | | | |
| | Time 5 | -3.79 | 0.65 | -5.06– -2.52 | -5.85 | 270 | -1.35 | <.001 | | | |
| | Time 6 | -3.80 | 0.65 | -5.08– -2.53 | -5.87 | 270 | -1.35 | <.001 | | | |
| | Time 7 | -3.54 | 0.66 | -4.85– -2.24 | -5.35 | 270 | -1.26 | <.001 | | | |
| | Time 8 | -4.03 | 0.68 | -5.37– -2.70 | -5.95 | 270 | -1.43 | <.001 | | | |
| | Time 9 | -4.70 | 0.69 | -6.05– -3.35 | -6.85 | 270 | -1.67 | <.001 | | | |
| | Time 10 | -4.73 | 0.67 | -6.05– -3.41 | -7.07 | 270 | -1.68 | <.001 | | | |
| | Time 11 | -4.43 | 0.67 | -5.75– -3.11 | -6.61 | 270 | -1.57 | <.001 | | | |
| | Completers | -2.77 | 1.39 | -5.61–0.07 | -1.99 | 30 | -0.98 | .056 | | | |
| | Residual | | | | | | | | 6.32 | 2.51 | 2.31–2.73 |
| DASS-D | Intercept | 31.25 | 3.53 | 24.31–38.20 | 8.86 | 270 | 3.98 | <.001 | 69.34 | 8.33 | 6.34–10.93 |
| | Time 2 | -3.59 | 1.82 | -7.18– -0.01 | -1.97 | 270 | -0.46 | .050 | | | |
| | Time 3 | -2.00 | 1.79 | -5.52–1.52 | -1.12 | 270 | -0.25 | .265 | | | |
| | Time 4 | -3.75 | 1.79 | -7.27– -0.23 | -2.10 | 270 | -0.48 | .037 | | | |
| | Time 5 | -7.37 | 1.84 | -11.00– -3.74 | -4.00 | 270 | -0.94 | .0001 | | | |
| | Time 6 | -7.40 | 1.84 | -11.03– -3.77 | -4.01 | 270 | -0.94 | .0001 | | | |
| | Time 7 | -7.73 | 1.88 | -11.45– -4.02 | -4.10 | 270 | -0.99 | .0001 | | | |
| | Time 8 | -5.81 | 1.93 | -9.61– -2.01 | -3.01 | 270 | -0.74 | .003 | | | |
| | Time 9 | -8.15 | 1.91 | -12.00– -4.31 | -4.17 | 270 | -1.04 | <.001 | | | |
| | Time 10 | -9.24 | 1.91 | -13.00– -5.49 | -4.85 | 270 | -1.18 | <.001 | | | |
| | Time 11 | -8.93 | 1.91 | -12.69– -5.18 | -4.68 | 270 | -1.14 | <.001 | | | |
| | Completers | -7.44 | 3.77 | -15.14–0.26 | -1.97 | 30 | -0.95 | .058 | | | |
| | Residual | | | | | | | | 51.19 | 7.15 | 6.58–7.78 |
| DASS-A | Intercept | 28.40 | 3.54 | 21.44–35.36 | 8.03 | 270 | 4.01 | <.001 | 75.87 | 8.71 | 6.68–11.35 |
| | Time 2 | -4.70 | 1.47 | -7.60– -1.81 | -3.20 | 270 | -0.66 | .002 | | | |
| | Time 3 | -4.38 | 1.45 | -7.22– -1.53 | -3.03 | 270 | -0.62 | .003 | | | |
| | Time 4 | -5.75 | 1.45 | -8.60– -2.90 | -3.98 | 270 | -0.91 | .0001 | | | |
| | Time 5 | -5.55 | 1.49 | -8.48– -2.62 | -3.72 | 270 | -0.78 | .0002 | | | |
| | Time 6 | -7.37 | 1.49 | -10.31– -4.44 | -4.95 | 270 | -1.04 | <.001 | | | |
| | Time 7 | -10.51 | 1.52 | -13.51– -7.51 | -6.89 | 270 | -1.48 | <.001 | | | |
| | Time 8 | -7.49 | 1.56 | -10.56– -4.41 | -4.80 | 270 | -1.06 | <.001 | | | |
| | Time 9 | -8.26 | 1.58 | -11.37– -5.15 | -5.23 | 270 | -1.17 | <.001 | | | |
| | Time 10 | -8.20 | 1.54 | -11.23– -5.16 | -5.32 | 270 | -1.16 | <.001 | | | |
| | Time 11 | -10.20 | 1.54 | -13.23– -7.16 | -6.61 | 270 | -1.44 | <.001 | | | |
| | Completers | -6.35 | 3.86 | -14.22–1.53 | -1.65 | 30 | -0.90 | .110 | | | |
| | Residual | | | | | | | | 33.45 | 5.78 | 5.78–6.29 |

***(continued on p.279)***

**Table I2 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DASS-S | Intercept | 28.55 | 3.33 | 22.00–35.11 | 8.57 | 270 | 4.10 | <.001 | 65.16 | 8.07 | 6.17–10.56 |
| | Time 2 | -2.72 | 1.53 | -5.73–0.28 | -1.79 | 270 | -0.39 | .076 | | | |
| | Time 3 | -1.63 | 1.50 | -4.57–1.32 | -1.08 | 270 | -0.23 | .280 | | | |
| | Time 4 | -3.56 | 1.50 | -6.51– -0.61 | -2.38 | 270 | -0.51 | .018 | | | |
| | Time 5 | -5.06 | 1.54 | -8.10– -2.02 | -3.28 | 270 | -0.73 | .001 | | | |
| | Time 6 | -6.33 | 1.54 | -9.37– -3.29 | -4.10 | 270 | -0.91 | .0001 | | | |
| | Time 7 | -7.57 | 1.58 | -10.68– -4.47 | -4.80 | 270 | -1.09 | <.001 | | | |
| | Time 8 | -7.36 | 1.62 | -10.54– -4.18 | -4.55 | 270 | -1.06 | <.001 | | | |
| | Time 9 | -6.63 | 1.64 | -9.85– -3.41 | -4.05 | 270 | -0.95 | .0001 | | | |
| | Time 10 | -8.77 | 1.60 | -11.91– -5.62 | -5.49 | 270 | -1.26 | <.001 | | | |
| | Time 11 | -9.69 | 1.60 | -12.84– -6.55 | -6.07 | 270 | -1.39 | <.001 | | | |
| | Completers | -4.55 | 3.60 | -11.91– 2.81 | -1.26 | 30 | -0.65 | .217 | | | |
| | Residual | | | | | | | | 35.91 | 5.99 | 5.51–6.52 |

DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; ; DASS-D = Depression, Anxiety and Stress Scale-21 – Depression scale; DASS-A = Depression, Anxiety and Stress Scale-21 – Anxiety scale; DASS-S = Depression, Anxiety and Stress Scale-21 – Stress scale.

**Table I3**

*Model Development – Comparison between Models fitted with Time versus Time and Treatment Completion as Fixed Effects*

| Outcome | Model fitted with Time only | | | Model fitted with Time and Treatment Completion | | |
|---|---|---|---|---|---|---|
| | AIC | BIC | LL | AIC | BIC | LL |
| BSL-95 Global Factor | 260.89 | 277.26 | -124.45 | 261.25 | 280.28 | -123.63 |
| BSL-95 Self-Perception | 279.26 | 295.63 | -133.63 | 278.55 | 297.58 | -132.27 |
| BSL-95 Affect Regulation | 279.27 | 313.63 | -142.63 | 298.17 | 317.20 | -142.09 |
| BSL-95 Self-Destruction | 313.07 | 329.44 | -150.54 | 314.19 | 333.22 | -150.09 |
| BSL-95 Dysphoria | 185.15 | 201.51 | -86.58 | 188.45 | 207.48 | -87.23 |
| BSL-95 Loneliness | 313.50 | 329.87 | -150.75 | 313.43 | 332.46 | -149.71 |
| BSL-95 Intrusion | 269.43 | 285.79 | -128.71 | 268.39 | 287.42 | -127.20 |
| BSL-95 Hostility | 303.18 | 319.55 | -145.59 | 304.37 | 323.40 | -145.18 |
| BSL-95 Global Well-Being | 1000.50 | 1016.87 | -494.25 | 995.99 | 1015.02 | -491.00 |
| IIP-32 Total T score | 303.18 | 319.55 | -145.59 | 304.37 | 323.40 | -145.18 |
| ISS Internal Shame | 976.56 | 992.92 | -482.28 | 969.07 | 988.10 | -477.54 |
| ISS Self-Esteem | 614.42 | 630.79 | -301.21 | 612.74 | 631.77 | -299.37 |
| RSES | 644.17 | 660.53 | -316.09 | 641.39 | 660.42 | -313.70 |
| DBT-WCCL DSS | 95.06 | 111.43 | -41.53 | 95.34 | 114.36 | -40.67 |
| DBT-WCCL DCS 1 | 137.75 | 154.12 | -62.88 | 139.75 | 158.77 | -62.87 |
| DBT-WCCL DCS 2 | 193.94 | 210.30 | -90.97 | 195.53 | 214.56 | -90.76 |
| FMI | 722.45 | 738.82 | -355.23 | 720.29 | 739.32 | -353.14 |

**Table I4**

*Summary of Goodness-of-Fit Statistics for Each Model (Primary Outcomes) – Total Sample*

| Outcome | $R^2m$ | $R^2c$ | AIC | BIC | LL |
|---|---|---|---|---|---|
| DERS | 0.3370 | 0.7869 | 2586.94 | 2638.80 | -1279.47 |
| DERS NONACCEPT | 0.1899 | 0.6489 | 1864.24 | 1916.10 | -918.12 |
| DERS GOALS | 0.2697 | 0.7761 | 1561.31 | 1613.16 | -766.66 |
| DERS IMPULSE | 0.2934 | 0.7941 | 1664.95 | 1716.81 | -818.48 |
| DERS AWARE | 0.0906 | 0.7376 | 1630.40 | 1682.25 | -801.20 |
| DERS STRATEGIES | 0.2765 | 0.7899 | 1837.97 | 1889.82 | -904.98 |
| DERS CLARITY | 0.2101 | 0.6857 | 1554.56 | 1606.41 | -763.28 |
| DASS-D | 0.1323 | 0.6315 | 2179.15 | 2231.01 | -1075.58 |
| DASS-A | 0.1248 | 0.7322 | 2066.05 | 2117.91 | -1019.03 |
| DASS-S | 0.1151 | 0.6856 | 2081.02 | 2132.88 | -1026.51 |

$R^2m$ = Marginal $R^2$; $R^2c$ = Conditional $R^2$

**Table I5**

*Pairwise Comparisons of DERS Total Scores based on the Linear Mixed-Effects Model*

| Comparison | Estimate | SE | *t*-ratio | *p*-value |
|---|---|---|---|---|
| Time 1–Time 2 | 4.73 | 3.52 | 1.35 | 1.00 |
| Time 1–Time 3 | 4.50 | 3.46 | 1.30 | 1.00 |
| Time 1– Time 4 | 16.94 | 3.46 | 4.90 | .0001 |
| Time 1– Time 5 | 25.71 | 3.56 | 7.23 | <.001 |
| Time 1– Time 6 | 28.79 | 3.56 | 8.08 | <.001 |
| Time 1– Time 7 | 31.46 | 3.64 | 8.64 | <.001 |
| Time 1– Time 8 | 31.24 | 3.73 | 8.38 | <.001 |
| Time 1– Time 9 | 35.73 | 3.78 | 9.46 | <.001 |
| Time 1– Time 10 | 37.03 | 3.69 | 10.05 | <.001 |
| Time 1– Time 11 | 36.61 | 3.69 | 9.93 | <.001 |
| Time 2–Time 3 | -0.23 | 3.52 | -0.07 | 1.00 |
| Time 2–Time 4 | 12.20 | 3.52 | 3.47 | .034 |
| Time 2–Time 5 | 20.98 | 3.63 | 5.79 | <.001 |
| Time 2–Time 6 | 24.06 | 3.63 | 6.63 | <.001 |
| Time 2–Time 7 | 26.73 | 3.71 | 7.21 | <.001 |
| Time 2–Time 8 | 26.50 | 3.79 | 6.99 | <.001 |
| Time 2–Time 9 | 31.00 | 3.84 | 8.07 | <.001 |
| Time 2–Time 10 | 32.30 | 3.75 | 8.61 | <.001 |
| Time 2–Time 11 | 31.87 | 3.75 | 8.50 | <.001 |
| Time 3–Time 4 | 12.44 | 3.46 | 3.60 | .021 |
| Time 3–Time 5 | 21.21 | 3.56 | 5.95 | <.001 |
| Time 3–Time 6 | 24.29 | 3.56 | 6.82 | <.001 |
| Time 3–Time 7 | 26.96 | 3.64 | 7.40 | <.001 |
| Time 3–Time 8 | 26.74 | 3.73 | 7.17 | <.001 |
| Time 3–Time 9 | 31.23 | 3.78 | 8.27 | <.001 |
| Time 3–Time 10 | 32.53 | 3.69 | 8.83 | <.001 |
| Time 3–Time 11 | 32.11 | 3.69 | 8.71 | <.001 |
| Time 4–Time 5 | 8.77 | 3.56 | 2.46 | .793 |
| Time 4–Time 6 | 11.86 | 3.56 | 3.33 | .055 |
| Time 4–Time 7 | 14.53 | 3.64 | 3.99 | .005 |
| Time 4–Time 8 | 14.30 | 3.73 | 3.83 | .008 |
| Time 4–Time 9 | 18.79 | 3.78 | 4.98 | .0001 |
| Time 4–Time 10 | 20.10 | 3.69 | 5.45 | <.001 |
| Time 4–Time 11 | 19.67 | 3.69 | 5.34 | <.001 |
| Time 5–Time 6 | 3.08 | 3.64 | 0.85 | 1.00 |
| Time 5–Time 7 | 5.75 | 3.72 | 1.55 | 1.00 |
| Time 5–Time 8 | 5.53 | 3.79 | 1.46 | 1.00 |
| Time 5–Time 9 | 10.02 | 3.84 | 2.61 | .527 |
| Time 5–Time 10 | 11.32 | 3.75 | 3.02 | .154 |
| Time 5–Time 11 | 10.90 | 3.75 | 2.90 | .219 |
| Time 6–Time 7 | 2.67 | 3.71 | 0.72 | 1.00 |
| Time 6–Time 8 | 2.44 | 3.79 | 0.64 | 1.00 |
| Time 6–Time 9 | 6.94 | 3.84 | 1.81 | 1.00 |
| Time 6–Time 10 | 8.23 | 3.75 | 2.20 | 1.00 |
| Time 6–Time 11 | 7.81 | 3.75 | 2.08 | 1.00 |
| Time 7–Time 8 | -0.23 | 3.85 | -0.06 | 1.00 |
| Time 7–Time 9 | 4.27 | 3.89 | 1.10 | 1.00 |
| Time 7–Time 10 | 5.57 | 3.80 | 1.46 | 1.00 |
| Time 7–Time 11 | 5.14 | 3.80 | 1.35 | 1.00 |
| Time 8–Time 9 | 4.49 | 3.96 | 1.13 | 1.00 |
| Time 8–Time 10 | 5.79 | 3.88 | 1.49 | 1.00 |
| Time 8–Time 11 | 5.37 | 3.88 | 1.39 | 1.00 |
| Time 9–Time 10 | 1.30 | 3.92 | 0.33 | 1.00 |
| Time 9–Time 11 | 0.88 | 3.92 | 0.22 | 1.00 |
| Time 10–Time 11 | -0.42 | 3.83 | -0.11 | 1.00 |

*Note. p*-value adjustment utilized Bonferroni method for 55 tests.

**Table I6**

*Pairwise Comparisons of DASS-D Scores based on the Linear Mixed-Effects Model*

| Comparison | Estimate | SE | *t*-ratio | *p*-value |
|---|---|---|---|---|
| Time 1–Time 2 | 3.59 | 1.82 | 1.97 | 1.00 |
| Time 1–Time 3 | 2.00 | 1.79 | 1.12 | 1.00 |
| Time 1– Time 4 | 3.75 | 1.79 | 2.10 | 1.00 |
| Time 1– Time 5 | 7.37 | 1.84 | 4.01 | 0.004 |
| Time 1– Time 6 | 7.40 | 1.84 | 4.01 | 0.004 |
| Time 1– Time 7 | 7.73 | 1.88 | 4.10 | 0.003 |
| Time 1– Time 8 | 5.81 | 1.93 | 3.01 | 0.156 |
| Time 1– Time 9 | 8.15 | 1.95 | 4.17 | 0.002 |
| Time 1– Time 10 | 9.24 | 1.91 | 4.85 | 0.0001 |
| Time 1– Time 11 | 8.93 | 1.91 | 4.68 | 0.0002 |
| Time 2–Time 3 | -1.59 | 1.82 | -0.87 | 1.00 |
| Time 2–Time 4 | 0.16 | 1.82 | 0.088 | 1.00 |
| Time 2–Time 5 | 3.78 | 1.88 | 2.02 | 1.00 |
| Time 2–Time 6 | 3.81 | 1.88 | 2.03 | 1.00 |
| Time 2–Time 7 | 4.14 | 1.92 | 2.16 | 1.00 |
| Time 2–Time 8 | 2.22 | 1.96 | 1.13 | 1.00 |
| Time 2–Time 9 | 4.56 | 1.99 | 2.30 | 1.00 |
| Time 2–Time 10 | 5.65 | 1.94 | 2.91 | 0.214 |
| Time 2–Time 11 | 5.34 | 1.94 | 2.75 | 0.346 |
| Time 3–Time 4 | 1.75 | 1.79 | 0.98 | 1.00 |
| Time 3–Time 5 | 5.37 | 1.84 | 2.92 | 0.213 |
| Time 3–Time 6 | 5.40 | 1.84 | 2.93 | 0.203 |
| Time 3–Time 7 | 5.73 | 1.88 | 3.04 | 0.142 |
| Time 3–Time 8 | 3.81 | 1.93 | 1.98 | 1.00 |
| Time 3–Time 9 | 6.15 | 1.95 | 3.15 | 0.100 |
| Time 3–Time 10 | 7.24 | 1.91 | 3.80 | 0.010 |
| Time 3–Time 11 | 6.93 | 1.91 | 3.64 | 0.018 |
| Time 4–Time 5 | 3.62 | 1.84 | 1.97 | 1.00 |
| Time 4–Time 6 | 3.65 | 1.84 | 1.98 | 1.00 |
| Time 4–Time 7 | 3.98 | 1.88 | 2.11 | 1.00 |
| Time 4–Time 8 | 2.06 | 1.93 | 1.07 | 1.00 |
| Time 4–Time 9 | 4.40 | 1.95 | 2.25 | 1.00 |
| Time 4–Time 10 | 5.49 | 1.91 | 2.88 | 0.237 |
| Time 4–Time 11 | 5.18 | 1.91 | 2.72 | 0.384 |
| Time 5–Time 6 | 0.03 | 1.88 | 0.02 | 1.00 |
| Time 5–Time 7 | 0.36 | 1.92 | 0.19 | 1.00 |
| Time 5–Time 8 | -1.56 | 1.96 | -0.80 | 1.00 |
| Time 5–Time 9 | 0.78 | 1.99 | 0.39 | 1.00 |
| Time 5–Time 10 | 1.87 | 1.94 | 0.96 | 1.00 |
| Time 5–Time 11 | 1.56 | 1.94 | 0.80 | 1.00 |
| Time 6–Time 7 | 0.33 | 1.92 | 0.17 | 1.00 |
| Time 6–Time 8 | -1.59 | 1.96 | -0.81 | 1.00 |
| Time 6–Time 9 | 0.75 | 1.99 | 0.38 | 1.00 |
| Time 6–Time 10 | 1.84 | 1.94 | 0.95 | 1.00 |
| Time 6–Time 11 | 1.53 | 1.94 | 0.79 | 1.00 |
| Time 7–Time 8 | -1.92 | 1.99 | -0.97 | 1.00 |
| Time 7–Time 9 | 0.42 | 2.01 | 0.21 | 1.00 |
| Time 7–Time 10 | 1.51 | 1.97 | 0.76 | 1.00 |
| Time 7–Time 11 | 1.20 | 1.97 | 0.61 | 1.00 |
| Time 8–Time 9 | 2.34 | 2.05 | 1.14 | 1.00 |
| Time 8–Time 10 | 3.43 | 2.01 | 1.71 | 1.00 |
| Time 8–Time 11 | 3.12 | 2.01 | 1.56 | 1.00 |
| Time 9–Time 10 | 1.09 | 2.03 | 0.54 | 1.00 |
| Time 9–Time 11 | 0.78 | 2.03 | 0.39 | 1.00 |
| Time 10–Time 11 | -0.31 | 1.98 | -0.16 | 1.00 |

*Note. p*-value adjustment utilized Bonferroni method for 55 tests.

**Table I7**

*Pairwise Comparisons of DASS-A Scores based on the Linear Mixed-Effects Model*

| Comparison | Estimate | SE | *t*-ratio | *p*-value |
|---|---|---|---|---|
| Time 1–Time 2 | 4.70 | 1.47 | 3.20 | .086 |
| Time 1–Time 3 | 4.38 | 1.45 | 3.03 | .150 |
| Time 1– Time 4 | 5.75 | 1.45 | 3.98 | .005 |
| Time 1– Time 5 | 5.55 | 1.49 | 3.72 | .013 |
| Time 1– Time 6 | 7.37 | 1.49 | 4.950 | .0001 |
| Time 1– Time 7 | 10.51 | 1.52 | 6.89 | <.0001 |
| Time 1– Time 8 | 7.49 | 1.56 | 4.80 | .0001 |
| Time 1– Time 9 | 8.26 | 1.58 | 5.23 | <.0001 |
| Time 1– Time 10 | 8.20 | 1.54 | 5.32 | <.0001 |
| Time 1– Time 11 | 10.20 | 1.54 | 6.61 | <.0001 |
| Time 2–Time 3 | -0.33 | 1.47 | -0.22 | 1.00 |
| Time 2–Time 4 | 1.05 | 1.47 | 0.71 | 1.00 |
| Time 2–Time 5 | 0.85 | 1.52 | 0.56 | 1.00 |
| Time 2–Time 6 | 2.67 | 1.52 | 1.76 | 1.00 |
| Time 2–Time 7 | 5.80 | 1.55 | 3.74 | .012 |
| Time 2–Time 8 | 2.780 | 1.59 | 1.75 | 1.00 |
| Time 2–Time 9 | 3.56 | 1.61 | 2.22 | 1.00 |
| Time 2–Time 10 | 3.49 | 1.57 | 2.23 | 1.00 |
| Time 2–Time 11 | 5.49 | 1.57 | 3.50 | .030 |
| Time 3–Time 4 | 1.38 | 1.45 | 0.958 | 1.00 |
| Time 3–Time 5 | 1.17 | 1.49 | 0.79 | 1.00 |
| Time 3–Time 6 | 3.00 | 1.49 | 2.019 | 1.00 |
| Time 3–Time 7 | 6.13 | 1.52 | 4.02 | .004 |
| Time 3–Time 8 | 3.11 | 1.56 | 1.99 | 1.00 |
| Time 3–Time 9 | 3.89 | 1.58 | 2.46 | .794 |
| Time 3–Time 10 | 3.82 | 1.54 | 2.48 | .760 |
| Time 3–Time 11 | 5.82 | 1.54 | 3.78 | .011 |
| Time 4–Time 5 | -0.20 | 1.49 | -0.13 | 1.00 |
| Time 4–Time 6 | 1.62 | 1.49 | 1.09 | 1.00 |
| Time 4–Time 7 | 4.76 | 1.52 | 3.125 | .110 |
| Time 4–Time 8 | 1.74 | 1.56 | 1.11 | 1.00 |
| Time 4–Time 9 | 2.51 | 1.58 | 1.59 | 1.00 |
| Time 4–Time 10 | 2.45 | 1.54 | 1.591 | 1.00 |
| Time 4–Time 11 | 4.45 | 1.54 | 2.89 | .234 |
| Time 5–Time 6 | 1.82 | 1.52 | 1.20 | 1.00 |
| Time 5–Time 7 | 4.96 | 1.56 | 3.19 | .089 |
| Time 5–Time 8 | 1.94 | 1.59 | 1.22 | 1.00 |
| Time 5–Time 9 | 2.71 | 1.61 | 1.69 | 1.00 |
| Time 5–Time 10 | 2.65 | 1.57 | 1.69 | 1.00 |
| Time 5–Time 11 | 4.65 | 1.57 | 2.96 | .184 |
| Time 6–Time 7 | 3.13 | 1.55 | 2.02 | 1.00 |
| Time 6–Time 8 | 0.11 | 1.59 | 0.07 | 1.00 |
| Time 6–Time 9 | 0.89 | 1.61 | 0.55 | 1.00 |
| Time 6–Time 10 | 0.82 | 1.57 | 0.52 | 1.00 |
| Time 6–Time 11 | 2.82 | 1.57 | 1.80 | 1.00 |
| Time 7–Time 8 | -3.02 | 1.61 | -1.88 | 1.00 |
| Time 7–Time 9 | -2.24 | 1.63 | -1.38 | 1.00 |
| Time 7–Time 10 | -2.31 | 1.59 | -1.45 | 1.00 |
| Time 7–Time 11 | -0.31 | 1.59 | -0.20 | 1.00 |
| Time 8–Time 9 | 0.78 | 1.66 | 0.47 | 1.00 |
| Time 8–Time 10 | 0.71 | 1.62 | 0.49 | 1.00 |
| Time 8–Time 11 | 2.71 | 1.62 | 1.67 | 1.00 |
| Time 9–Time 10 | -0.07 | 1.64 | -0.04 | 1.00 |
| Time 9–Time 11 | 1.93 | 1.64 | 1.18 | 1.00 |
| Time 10–Time 11 | 2.00 | 1.60 | 1.25 | 1.00 |

*Note. p*-value adjustment utilized Bonferroni method for 55 tests.

**Table I8**

*Results of Pairwise Comparisons of DASS-S Scores based on the Linear Mixed-Effects Model*

| Comparison | Estimate | SE | *t*-ratio | *p*-value |
|---|---|---|---|---|
| Time 1–Time 2 | 2.72 | 1.53 | 1.79 | 1.00 |
| Time 1–Time 3 | 1.63 | 1.50 | 1.08 | 1.00 |
| Time 1– Time 4 | 3.56 | 1.50 | 2.38 | .996 |
| Time 1– Time 5 | 5.06 | 1.54 | 3.28 | .065 |
| Time 1– Time 6 | 6.33 | 1.54 | 4.10 | .003 |
| Time 1– Time 7 | 7.57 | 1.58 | 4.80 | .0001 |
| Time 1– Time 8 | 7.36 | 1.62 | 4.55 | .0004 |
| Time 1– Time 9 | 6.63 | 1.64 | 4.05 | .004 |
| Time 1– Time 10 | 8.77 | 1.60 | 5.49 | <.0001 |
| Time 1– Time 11 | 9.69 | 1.60 | 6.07 | <.0001 |
| Time 2–Time 3 | -1.10 | 1.53 | -0.72 | 1.00 |
| Time 2–Time 4 | 0.84 | 1.53 | 0.55 | 1.00 |
| Time 2–Time 5 | 2.34 | 1.57 | 1.49 | 1.00 |
| Time 2–Time 6 | 3.61 | 1.57 | 2.30 | 1.00 |
| Time 2–Time 7 | 4.85 | 1.61 | 3.02 | .153 |
| Time 2–Time 8 | 4.64 | 1.64 | 2.82 | .284 |
| Time 2–Time 9 | 3.91 | 1.66 | 2.35 | 1.00 |
| Time 2–Time 10 | 6.04 | 1.63 | 3.72 | .013 |
| Time 2–Time 11 | 6.97 | 1.63 | 4.29 | .001 |
| Time 3–Time 4 | 1.94 | 1.50 | 1.29 | 1.00 |
| Time 3–Time 5 | 3.44 | 1.54 | 2.23 | 1.00 |
| Time 3–Time 6 | 4.71 | 1.54 | 3.05 | .139 |
| Time 3–Time 7 | 5.95 | 1.58 | 3.77 | .011 |
| Time 3–Time 8 | 5.73 | 1.62 | 3.55 | .025 |
| Time 3–Time 9 | 5.00 | 1.64 | 3.06 | .135 |
| Time 3–Time 10 | 7.14 | 1.60 | 4.47 | .0006 |
| Time 3–Time 11 | 8.07 | 1.60 | 5.05 | <.0001 |
| Time 4–Time 5 | 1.50 | 1.54 | 0.97 | 1.00 |
| Time 4–Time 6 | 2.77 | 1.54 | 1.79 | 1.00 |
| Time 4–Time 7 | 4.01 | 1.58 | 2.54 | 1.00 |
| Time 4–Time 8 | 3.801 | 1.62 | 2.35 | 1.00 |
| Time 4–Time 9 | 3.07 | 1.63 | 1.87 | 1.00 |
| Time 4–Time 10 | 5.21 | 1.60 | 3.26 | .070 |
| Time 4–Time 11 | 6.13 | 1.60 | 3.84 | .009 |
| Time 5–Time 6 | 1.27 | 1.58 | 0.81 | 1.00 |
| Time 5–Time 7 | 2.51 | 1.61 | 1.56 | 1.00 |
| Time 5–Time 8 | 2.30 | 1.64 | 1.40 | 1.00 |
| Time 5–Time 9 | 1.57 | 1.66 | 0.94 | 1.00 |
| Time 5–Time 10 | 3.71 | 1.63 | 2.28 | 1.00 |
| Time 5–Time 11 | 4.63 | 1.63 | 2.85 | .261 |
| Time 6–Time 7 | 1.24 | 1.61 | 0.77 | 1.00 |
| Time 6–Time 8 | 1.03 | 1.64 | 0.62 | 1.00 |
| Time 6–Time 9 | 0.30 | 1.66 | 0.18 | 1.00 |
| Time 6–Time 10 | 2.43 | 1.63 | 1.50 | 1.00 |
| Time 6–Time 11 | 3.36 | 1.63 | 2.07 | 1.00 |
| Time 7–Time 8 | -0.22 | 1.67 | -0.13 | 1.00 |
| Time 7–Time 9 | -0.94 | 1.69 | -0.56 | 1.00 |
| Time 7–Time 10 | 1.19 | 1.65 | 0.72 | 1.00 |
| Time 7–Time 11 | 2.12 | 1.65 | 1.28 | 1.00 |
| Time 8–Time 9 | -0.73 | 1.72 | -0.42 | 1.00 |
| Time 8–Time 10 | 1.41 | 1.68 | 0.84 | 1.00 |
| Time 8–Time 11 | 2.33 | 1.68 | 1.39 | 1.00 |
| Time 9–Time 10 | 2.14 | 1.70 | 1.26 | 1.00 |
| Time 9–Time 11 | 3.06 | 1.70 | 1.80 | 1.00 |
| Time 10–Time 11 | 0.92 | 1.66 | 0.56 | 1.00 |

*Note. p*-value adjustment utilized Bonferroni method for 55 tests.

**Table I9**

*Results of the Linear Mixed-Effects Model utilizing REML Analyses for all Secondary Outcomes – Total Sample*

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| BSL-95 Global Factor | Intercept | 2.16 | 0.15 | 1.87–2.45 | 14.82 | 82 | 7.60 | <.001 | 0.39 | 0.62 | 0.46–0.85 |
| | Time 3 | -0.09 | 0.13 | -0.36–0.18 | -0.68 | 82 | -0.32 | .501 | | | |
| | Time 7 | -0.71 | 0.14 | -1.00– -0.43 | -5.00 | 82 | -2.51 | <.001 | | | |
| | Time 11 | 0.72 | 0.14 | -1.01– -0.43 | -4.97 | 82 | -2.53 | <.001 | | | |
| | Residual | | | | | | | | 0.29 | 0.54 | 0.46–0.63 |
| BSL-95 Self-Perception | Intercept | 1.95 | 0.16 | 1.63–2.27 | 12.18 | 82 | 6.35 | <.001 | 0.49 | 0.70 | 0.52–0.95 |
| | Time 3 | -0.13 | 0.14 | -0.42–0.16 | -0.91 | 82 | -0.43 | .366 | | | |
| | Time 7 | -0.78 | 0.15 | -1.08– -0.47 | -5.05 | 82 | -2.53 | <.001 | | | |
| | Time 11 | -0.73 | 0.16 | -1.04– -0.42 | -4.6 | 82 | -2.37 | <.001 | | | |
| | Residual | | | | | | | | 0.34 | 0.58 | 0.50–0.68 |
| BSL-95 Affect Regulation | Intercept | 2.48 | 0.17 | 2.14–2.82 | 14.45 | 82 | 7.44 | <.001 | 0.55 | 0.74 | 0.54–1.00 |
| | Time 3 | -0.13 | 0.16 | -0.45–0.18 | -0.84 | 82 | -0.40 | .405 | | | |
| | Time 7 | -0.79 | 0.17 | -1.12– -0.45 | -4.69 | 82 | -2.36 | <.001 | | | |
| | Time 11 | -0.85 | 0.17 | -1.19– -0.51 | -5.01 | 82 | -2.55 | <.001 | | | |
| | Residual | | | | | | | | 0.40 | 0.63 | 0.54–0.74 |
| BSL-95 Self-Destruction | Intercept | 2.11 | 0.19 | 1.73–2.50 | 11.06 | 82 | 5.94 | <.001 | 0.73 | 0.86 | 0.74–1.15 |
| | Time 3 | -0.12 | 0.17 | -0.45–0.21 | -0.72 | 82 | -0.34 | .471 | | | |
| | Time 7 | -0.81 | 0.18 | -1.16– -0.46 | -4.60 | 82 | -2.28 | <.001 | | | |
| | Time 11 | -0.88 | 0.18 | -1.24– -0.53 | -4.95 | 82 | -2.48 | <.001 | | | |
| | Residual | | | | | | | | 0.44 | 0.66 | 0.57–0.77 |
| BSL-95 Dysphoria | Intercept | 2.91 | 0.10 | 2.71–3.11 | 28.81 | 82 | 14.18 | <.001 | 0.17 | 0.41 | 0.30–0.57 |
| | Time 3 | 0.08 | 0.10 | -0.11–0.28 | 0.82 | 82 | 0.40 | .412 | | | |
| | Time 7 | -0.23 | 0.10 | -0.44– -0.02 | -2.19 | 82 | -1.12 | .031 | | | |
| | Time 11 | -0.34 | 0.11 | -0.55– -0.13 | -3.24 | 82 | -1.67 | .002 | | | |
| | Residual | | | | | | | | 0.16 | 0.39 | 0.34–0.46 |
| BSL-95 Loneliness | Intercept | 2.21 | 0.18 | 1.86–2.56 | 12.47 | 82 | 6.10 | <.001 | 0.52 | 0.72 | 0.52–0.99 |
| | Time 3 | -0.01 | 0.17 | -0.36–0.33 | -0.07 | 82 | -0.04 | 0.942 | | | |
| | Time 7 | 0.74 | 0.19 | -1.11– -0.37 | -4.01 | 82 | -2.05 | .0001 | | | |
| | Time 11 | -0.73 | 0.19 | -1.10– -0.35 | -3.87 | 82 | -2.00 | .0002 | | | |
| | Residual | | | | | | | | 0.49 | 0.70 | 0.60–0.81 |
| BSL-95 Intrusion | Intercept | 1.34 | 0.15 | 1.03–1.64 | 8.68 | 82 | 4.54 | <.001 | 0.45 | 0.67 | 0.50–0.91 |
| | Time 3 | -0.13 | 0.14 | -0.40–0.15 | -0.90 | 82 | -0.42 | .369 | | | |
| | Time 7 | -0.55 | 0.15 | -0.85– -0.26 | -3.76 | 82 | -1.88 | .0003 | | | |
| | Time 11 | -0.50 | 0.15 | -0.79– -0.20 | -3.35 | 82 | -1.69 | .0012 | | | |
| | Residual | | | | | | | | 0.31 | 0.55 | 0.47–0.65 |
| BSL-95 Hostility | Intercept | 2.05 | 0.18 | 1.70–2.41 | 11.48 | 82 | 6.00 | <.001 | 0.61 | 0.78 | 0.58–1.05 |
| | Time 3 | -0.16 | 0.16 | -0.48–0.16 | -1.00 | 82 | -0.47 | .318 | | | |
| | Time 7 | -0.79 | 0.17 | -1.12– -0.45 | -4.60 | 82 | -2.30 | <.001 | | | |
| | Time 11 | -0.72 | 0.17 | -1.06– -0.37 | -4.16 | 82 | -2.10 | .0001 | | | |
| | Residual | | | | | | | | 0.41 | 0.64 | 0.55–0.75 |
| BSL-95 Global Well-Being | Intercept | 43.44 | 3.54 | 36.40–50.47 | 12.28 | 82 | 5.64 | <.001 | 171.32 | 13.09 | 9.19–18.64 |
| | Time 3 | 2.81 | 3.78 | -4.71–10.34 | 0.74 | 82 | 0.37 | .459 | | | |
| | Time 7 | 11.58 | 4.00 | 3.62–19.54 | 2.89 | 82 | 1.50 | .005 | | | |
| | Time 11 | 12.06 | 4.05 | 3.99–20.12 | 2.97 | 82 | 1.57 | .004 | | | |
| | Residual | | | | | | | | 228.92 | 15.13 | 12.98–17.64 |
| IIP-32 Total T score | Intercept | 71.72 | 1.88 | 67.97–75.47 | 38.08 | 82 | 19.52 | <.001 | 64.93 | 8.06 | 5.96–10.90 |
| | Time 3 | -1.63 | 1.74 | -5.09–1.84 | -0.93 | 82 | -0.44 | .354 | | | |
| | Time 7 | -8.27 | 1.85 | -11.95– -4.59 | -4.47 | 82 | -2.25 | <.001 | | | |
| | Time 11 | -10.96 | 1.87 | -14.69– -7.24 | -5.86 | 82 | -2.99 | <.001 | | | |
| | Residual | | | | | | | | 48.55 | 6.97 | 5.98–8.12 |

***(continued on p.287)***

**Table I9 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| ISS Internal Shame | Intercept | 73.00 | 3.35 | 66.33–79.67 | 21.78 | 82 | 10.74 | <.001 | 188.90 | 13.74 | 10.04–18.82 |
| | Time 3 | -0.41 | 3.27 | -6.90– 6.09 | -0.12 | 82 | -0.06 | 0.901 | | | |
| | Time 7 | -16.83 | 3.46 | -23.72– -9.94 | -4.86 | 82 | -2.48 | <.001 | | | |
| | Time 11 | -18.98 | 3.51 | -25.96– -12.00 | -5.41 | 82 | -2.79 | <.001 | | | |
| | Residual | | | | | | | | 170.70 | 13.07 | 11.21–15.22 |
| ISS Self-Esteem | Intercept | 7.81 | 0.75 | 6.33–9.30 | 10.46 | 82 | 5.80 | <.001 | 11.77 | 3.43 | 2.58–4.57 |
| | Time 3 | -0.28 | 0.62 | -1.51–0.95 | -0.46 | 82 | -0.21 | .650 | | | |
| | Time 7 | 1.09 | 0.66 | -0.21–2.40 | 1.66 | 82 | 0.81 | .100 | | | |
| | Time 11 | 1.31 | 0.66 | 0.09–2.73 | 2.12 | 82 | 1.05 | .037 | | | |
| | Residual | | | | | | | | 6.10 | 2.47 | 2.12–2.88 |
| RSES | Intercept | 8.69 | 0.83 | 7.03–10.34 | 10.43 | 82 | 5.65 | <.001 | 14.05 | 3.75 | 2.80–5.02 |
| | Time 3 | 0.19 | 0.71 | -1.23–1.61 | 0.26 | 82 | 0.12 | 0.793 | | | |
| | Time 7 | 3.35 | 0.76 | 1.84–4.86 | 4.42 | 82 | 2.18 | <.001 | | | |
| | Time 11 | 4.44 | 0.77 | 2.91–5.97 | 5.78 | 82 | 2.89 | <.001 | | | |
| | Residual | | | | | | | | 8.15 | 2.85 | 2.45–3.33 |
| DBT-WCCL DSS | Intercept | 1.50 | 0.07 | 1.35–1.64 | 20.40 | 82 | 11.05 | <.001 | 0.11 | 0.33 | 0.25–0.44 |
| | Time 3 | 0.06 | 0.06 | -0.07–0.18 | 0.93 | 82 | 0.43 | .355 | | | |
| | Time 7 | 0.31 | 0.07 | 0.18–0.44 | 4.63 | 82 | 2.28 | <.001 | | | |
| | Time 11 | 0.30 | 0.07 | 0.17–0.44 | 4.49 | 82 | 2.24 | <.001 | | | |
| | Residual | | | | | | | | 0.06 | 0.25 | 0.22–0.29 |
| DBT-WCCL DCS 1 | Intercept | 2.17 | 0.09 | 2.00–2.35 | 24.56 | 82 | 13.26 | <.001 | 0.16 | 0.40 | 0.30–0.53 |
| | Time 3 | 0.04 | 0.08 | -0.11–0.19 | 0.52 | 82 | 0.24 | .604 | | | |
| | Time 7 | -0.25 | 0.08 | -0.41– -0.09 | -3.07 | 82 | -1.51 | .003 | | | |
| | Time 11 | -0.37 | 0.08 | -0.54– -0.21 | -4.56 | 82 | -2.28 | <.001 | | | |
| | Residual | | | | | | | | 0.09 | 0.30 | 0.26–0.35 |
| DBT-WCCL DCS 2 | Intercept | 1.51 | 0.13 | 1.26–1.76 | 11.81 | 82 | 7.22 | <.001 | 0.39 | 0.62 | 0.47–0.82 |
| | Time 3 | 0.09 | 0.09 | -0.09–0.28 | 1.03 | 82 | 0.45 | .308 | | | |
| | Time 7 | 0.01 | 0.09 | -0.18–0.21 | 0.14 | 82 | 0.07 | .887 | | | |
| | Time 11 | -0.20 | 0.10 | -0.40– -0.01 | -2.06 | 82 | -0.97 | .042 | | | |
| | Residual | | | | | | | | 0.13 | 0.37 | 0.31–0.43 |
| FMI | Intercept | 28.00 | 1.10 | 25.81–30.19 | 25.49 | 82 | 12.71 | <.001 | 20.82 | 4.56 | 3.35–6.22 |
| | Time 3 | -0.53 | 1.05 | -2.63–1.57 | -0.50 | 82 | -0.24 | .616 | | | |
| | Time 7 | 5.30 | 1.12 | 3.08–7.53 | 4.74 | 82 | 2.41 | <.001 | | | |
| | Time 11 | 7.30 | 1.13 | 5.04–9.55 | 6.44 | 82 | 3.31 | <.001 | | | |
| | Residual | | | | | | | | 17.80 | 4.22 | 3.62–4.91 |

BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = DBT-WCCL Skills use scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

**Table I10**

*Summary of Goodness-of-Fit Statistics for Each Model (Secondary Outcomes) – Total Sample*

| Outcome | $R^2m$ | $R^2c$ | AIC | BIC | LL |
|---|---|---|---|---|---|
| BSL-95 Global Factor | 0.1435 | 0.6339 | 260.89 | 277.26 | -124.45 |
| BSL-95 Self-Perception | 0.1280 | 0.6445 | 279.26 | 295.63 | -133.63 |
| BSL-95 Affect Regulation | 0.1324 | 0.6333 | 279.27 | 313.63 | -142.63 |
| BSL-95 Self-Destruction | 0.1180 | 0.6697 | 313.07 | 329.44 | -150.54 |
| BSL-95 Dysphoria | 0.0813 | 0.5616 | 185.15 | 201.51 | -86.58 |
| BSL-95 Loneliness | 0.1165 | 0.5709 | 313.50 | 329.87 | -150.75 |
| BSL-95 Intrusion | 0.0690 | 0.6231 | 269.43 | 285.79 | -128.71 |
| BSL-95 Hostility | 0.0126 | 0.6368 | 303.18 | 319.55 | -145.59 |
| BSL-95 Global Well-Being | 0.0658 | 0.4657 | 1000.50 | 1016.87 | -494.25 |
| IIP-32 Total T score | 0.1527 | 0.6375 | 303.18 | 319.55 | -145.59 |
| ISS Internal Shame | 0.1796 | 0.6106 | 976.56 | 992.92 | -482.28 |
| ISS Self-Esteem | 0.0274 | 0.6680 | 614.42 | 630.79 | -301.21 |
| RSES | 0.1441 | 0.6857 | 644.17 | 660.53 | -316.09 |
| DBT-WCCL DSS | 0.1025 | 0.6715 | 95.06 | 111.43 | -41.53 |
| DBT-WCCL DCS 1 | 0.1042 | 0.6687 | 137.75 | 154.12 | -62.88 |
| DBT-WCCL DCS 2 | 0.0214 | 0.7507 | 193.94 | 210.30 | -90.97 |
| FMI | 0.2249 | 0.6428 | 722.45 | 738.82 | -355.23 |

$R^2m$ = Marginal $R^2$; $R^2c$ = Conditional $R^2$

**Table I11**

*Results of the Linear Mixed-Effects Model utilizing REML Analyses for all Outcomes – Data Completers*

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DERS | Intercept | 157.29 | 15.45 | 126.81–187.76 | 10.18 | 200 | 10.17 | <.001 | 443.10 | 21.05 | 15.12–29.30 |
| | Time 2 | -5.14 | 5.31 | -13.64–3.35 | -1.19 | 200 | -1.19 | .234 | | | |
| | Time 3 | -6.05 | 4.31 | -14.54–2.45 | -1.40 | 200 | -1.40 | .162 | | | |
| | Time 4 | -18.86 | 4.31 | -27.35– -10.36 | -4.38 | 200 | -4.38 | <.001 | | | |
| | Time 5 | -25.95 | 4.31 | -34.45– -17.46 | -6.02 | 200 | -6.02 | <.001 | | | |
| | Time 6 | -30.71 | 4.31 | -39.21– -22.22 | -7.13 | 200 | -7.13 | <.001 | | | |
| | Time 7 | -33.38 | 4.31 | -41.88– -24.89 | -7.75 | 200 | -7.75 | <.001 | | | |
| | Time 8 | -33.10 | 4.31 | -41.59– -24.60 | -7.68 | 200 | -7.68 | <.001 | | | |
| | Time 9 | -36.52 | 4.31 | -45.02– -28.03 | -8.48 | 200 | -8.48 | <.001 | | | |
| | Time 10 | -38.52 | 4.31 | -47.02– -30.03 | -8.94 | 200 | -8.94 | <.001 | | | |
| | Time 11 | -37.43 | 4.31 | -45.92 -28.93 | -8.69 | 200 | -8.68 | <.001 | | | |
| | Completers | -37.06 | 15.96 | -70.46– -3.65 | -2.32 | 19 | -2.32 | .032 | | | |
| | Residual | | | | | | | | 194.91 | 13.96 | 12.66–15.40 |
| DERS NONACCEPT | Intercept | 28.56 | 3.12 | 22.41–34.71 | 9.16 | 200 | 9.16 | <.001 | 16.26 | 4.03 | 2.84–5.72 |
| | Time 2 | -0.38 | 1.31 | -2.96–2.20 | -0.29 | 200 | -0.29 | 0.771 | | | |
| | Time 3 | -0.76 | 1.31 | -3.34–1.82 | -0.58 | 200 | -0.58 | .561 | | | |
| | Time 4 | -3.57 | 1.31 | -6.15– -0.99 | -2.73 | 200 | -2.73 | .007 | | | |
| | Time 5 | -5.19 | 1.31 | -7.77– -2.61 | -3.97 | 200 | -3.97 | .0001 | | | |
| | Time 6 | -5.81 | 1.31 | -8.39– -3.23 | -4.44 | 200 | -4.44 | <.001 | | | |
| | Time 7 | -6.43 | 1.31 | -9.01– -3.85 | -4.92 | 200 | -4.92 | <.001 | | | |
| | Time 8 | -7.05 | 1.31 | -9.63– -4.47 | -5.39 | 200 | -5.39 | <.001 | | | |
| | Time 9 | -7.62 | 1.31 | -10.20– -5.04 | -5.83 | 200 | -5.83 | <.001 | | | |
| | Time 10 | -7.33 | 1.31 | -9.91– -4.76 | -5.61 | 200 | -5.61 | <.001 | | | |
| | Time 11 | -7.00 | 1.31 | -9.58– -4.42 | -5.35 | 200 | -5.35 | <.001 | | | |
| | Completers | -7.62 | 3.14 | -14.20– -1.04 | -2.42 | 19 | -2.42 | .026 | | | |
| | Residual | | | | | | | | 17.95 | 4.24 | 3.84–4.67 |
| DERS GOALS | Intercept | 23.46 | 2.85 | 17.85–29.07 | 8.24 | 200 | 4.92 | <.001 | 15.10 | 3.89 | 2.79–5.40 |
| | Time 2 | -0.57 | 0.77 | -2.09–0.95 | -0.74 | 200 | -0.12 | .460 | | | |
| | Time 3 | -0.81 | 0.77 | -2.33–0.71 | -1.05 | 200 | -0.17 | .296 | | | |
| | Time 4 | -2.38 | 0.77 | -3.90– -0.86 | -3.08 | 200 | -0.50 | .002 | | | |
| | Time 5 | -3.29 | 0.77 | -4.81– -1.76 | -4.25 | 200 | -0.69 | <.001 | | | |
| | Time 6 | -4.29 | 0.77 | -5.81– -2.76 | -5.55 | 200 | -0.90 | <.001 | | | |
| | Time 7 | -4.76 | 0.77 | -6.28– -3.24 | -6.17 | 200 | -1.00 | <.001 | | | |
| | Time 8 | -4.00 | 0.77 | -5.52– -2.48 | -5.18 | 200 | -0.84 | <.001 | | | |
| | Time 9 | -5.24 | 0.77 | -6.76 – -3.72 | -6.78 | 200 | -1.10 | <.001 | | | |
| | Time 10 | -5.29 | 0.77 | -6.81– -3.76 | -6.84 | 200 | -1.11 | <.001 | | | |
| | Time 11 | -4.95 | 0.77 | -6.48– -3.43 | -6.41 | 200 | -1.04 | <.001 | | | |
| | Completers | -4.93 | 2.94 | -11.09–1.23 | -1.68 | 19 | -1.03 | .110 | | | |
| | Residual | | | | | | | | 6.26 | 2.50 | 2.27–2.76 |
| DERS IMPULSE | Intercept | 27.20 | 3.36 | 20.58–33.83 | 8.09 | 200 | 4.83 | <.001 | 21.04 | 4.59 | 3.30–6.38 |
| | Time 2 | -1.76 | 0.91 | -3.56–0.04 | -1.93 | 200 | -0.31 | .055 | | | |
| | Time 3 | -2.14 | 0.91 | -3.94– -0.34 | -2.35 | 200 | -0.38 | .020 | | | |
| | Time 4 | -3.76 | 0.91 | -5.56– -1.96 | -4.12 | 200 | -0.67 | .0001 | | | |
| | Time 5 | -5.05 | 0.91 | -6.85– -3.25 | -5.53 | 200 | -0.90 | <.001 | | | |
| | Time 6 | -6.33 | 0.91 | -8.13– -4.53 | -6.94 | 200 | -1.13 | <.001 | | | |
| | Time 7 | -6.29 | 0.91 | -8.08– -4.49 | -6.89 | 200 | -1.12 | <.001 | | | |
| | Time 8 | -6.05 | 0.91 | -7.85– -4.25 | -6.63 | 200 | -1.07 | <.001 | | | |
| | Time 9 | -6.76 | 0.91 | -8.56– -4.96 | -7.41 | 200 | -1.20 | <.001 | | | |
| | Time 10 | -6.62 | 0.91 | -8.42– -4.82 | -7.26 | 200 | -1.18 | <.001 | | | |
| | Time 11 | -7.48 | 0.91 | -9.27– -5.68 | -8.20 | 200 | -1.33 | <.001 | | | |
| | Completers | -7.54 | 3.47 | -14.81– -0.27 | -2.17 | 19 | -1.34 | .043 | | | |
| | Residual | | | | | | | | 8.73 | 2.96 | 2.68–3.26 |

***(continued on p.290)***

**Table I11 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DERS AWARE | Intercept | 20.03 | 3.14 | 13.84–26.21 | 6.38 | 200 | 3.83 | <.001 | 18.40 | 4.29 | 3.09–5.96 |
| | Time 2 | 0.62 | 0.83 | -1.02–2.26 | 0.74 | 200 | 0.12 | .458 | | | |
| | Time 3 | 0.62 | 0.83 | -1.02–2.26 | 0.74 | 200 | 0.12 | .458 | | | |
| | Time 4 | -0.90 | 0.83 | -2.54–0.74 | -1.09 | 200 | -0.17 | .278 | | | |
| | Time 5 | -1.57 | 0.83 | -3.21–0.07 | -1.89 | 200 | -0.30 | .060 | | | |
| | Time 6 | -2.05 | 0.83 | -3.69– -0.41 | -2.46 | 200 | -0.39 | .015 | | | |
| | Time 7 | -2.90 | 0.83 | -4.54– -1.26 | -3.49 | 200 | -0.56 | .0006 | | | |
| | Time 8 | -3.05 | 0.83 | -4.69– -1.41 | 3.66 | 200 | -0.58 | .0003 | | | |
| | Time 9 | -2.48 | 0.83 | -4.12– -0.84 | -2.98 | 200 | -0.47 | .0033 | | | |
| | Time 10 | -3.90 | 0.83 | -5.54– -2.26 | -4.69 | 200 | -0.74 | <.001 | | | |
| | Time 11 | -3.67 | 0.83 | -5.31– -2.03 | -4.41 | 200 | -0.70 | <.001 | | | |
| | Completers | -2.92 | 3.25 | -9.72–3.87 | -0.90 | 19 | -0.56 | .379 | | | |
| | Residual | | | | | | | | 7.26 | 2.70 | 2.44–2.97 |
| DERS STRATEGIES | Intercept | 36.77 | 4.80 | 27.31–46.23 | 7.66 | 200 | 4.63 | <.001 | 43.21 | 6.57 | 4.73–9.13 |
| | Time 2 | -1.76 | 1.24 | -4.20–0.68 | -1.42 | 200 | -0.22 | .156 | | | |
| | Time 3 | -1.71 | 1.24 | -4.15–0.72 | -1.39 | 200 | -0.22 | .167 | | | |
| | Time 4 | -4.62 | 1.24 | -7.06– -2.18 | -3.74 | 200 | -0.58 | .0002 | | | |
| | Time 5 | -6.86 | 1.24 | -9.30– -4.42 | -5.55 | 200 | -0.86 | <.001 | | | |
| | Time 6 | -7.62 | 1.24 | -10.06– -5.18 | -6.16 | 200 | -0.96 | <.001 | | | |
| | Time 7 | -8.14 | 1.24 | -10.58– -5.70 | -6.59 | 200 | -1.03 | <.001 | | | |
| | Time 8 | -8.48 | 1.24 | -10.91– -6.04 | -6.85 | 200 | -1.07 | <.001 | | | |
| | Time 9 | -9.24 | 1.24 | -11.68– -6.80 | -7.47 | 200 | 1.16 | <.001 | | | |
| | Time 10 | -10.00 | 1.24 | -12.44– -7.56 | -8.09 | 200 | -1.26 | <.001 | | | |
| | Time 11 | -9.05 | 1.24 | -11.49– 6.61 | -7.32 | 200 | -1.14 | <.001 | | | |
| | Completers | -9.06 | 4.97 | -19.46–1.34 | -1.82 | 19 | -1.14 | .084 | | | |
| | Residual | | | | | | | | 16.05 | 4.01 | 3.63–4.42 |
| DERS CLARITY | Intercept | 21.27 | 2.18 | 16.97–25.57 | 9.75 | 200 | 5.42 | <.001 | 8.46 | 2.91 | 2.07–4.08 |
| | Time 2 | -1.29 | 0.75 | -2.77–0.20 | -1.71 | 200 | -0.33 | .089 | | | |
| | Time 3 | -1.24 | 0.75 | -2.72–0.25 | 1.65 | 200 | -0.32 | .101 | | | |
| | Time 4 | -3.62 | 0.75 | -5.10– -2.14 | -4.81 | 200 | -0.92 | <.001 | | | |
| | Time 5 | -4.00 | 0.75 | -5.48– -2.52 | -5.32 | 200 | -1.02 | <.001 | | | |
| | Time 6 | -4.62 | 0.75 | -6.10– -3.14 | -6.14 | 200 | -1.18 | <.001 | | | |
| | Time 7 | -4.86 | 0.75 | -6.34– -3.37 | -6.46 | 200 | -1.24 | <.001 | | | |
| | Time 8 | -4.48 | 0.75 | -5.96– -2.99 | -5.95 | 200 | -1.14 | <.001 | | | |
| | Time 9 | -5.19 | 0.75 | -6.67– -3.71 | -6.90 | 200 | -1.32 | <.001 | | | |
| | Time 10 | -5.38 | 0.75 | -6.86– -3.90 | -7.15 | 200 | -1.37 | <.001 | | | |
| | Time 11 | -5.29 | 0.75 | -6.77– -3.80 | -7.03 | 200 | -1.35 | <.001 | | | |
| | Completers | -4.98 | 2.23 | -9.65– -0.31 | -2.23 | 19 | -1.27 | .038 | | | |
| | Residual | | | | | | | | 5.94 | 2.44 | 2.21–2.69 |
| DASS-D | Intercept | 28.10 | 6.99 | 14.3–41.88 | 4.02 | 200 | 8.44 | .0001 | 89.57 | 9.46 | 6.79–13.20 |
| | Time 2 | -4.19 | 2.08 | -8.29– -0.09 | -2.02 | 200 | -2.75 | .045 | | | |
| | Time 3 | -2.19 | 2.08 | -6.29–1.91 | -1.05 | 200 | -1.46 | .293 | | | |
| | Time 4 | -2.86 | 2.08 | -6.96–1.24 | -1.37 | 200 | -1.91 | .171 | | | |
| | Time 5 | -6.00 | 2.08 | -10.10– -1.90 | -2.89 | 200 | -3.89 | .004 | | | |
| | Time 6 | -6.57 | 2.08 | -10.67– -2.47 | -3.16 | 200 | -4.25 | .002 | | | |
| | Time 7 | -6.95 | 2.08 | -11.05– -2.85 | -3.34 | 200 | -4.40 | .001 | | | |
| | Time 8 | -5.43 | 2.08 | -9.53– -1.33 | -2.61 | 200 | -3.36 | .010 | | | |
| | Time 9 | -6.95 | 2.08 | -11.05– -2.85 | -3.34 | 200 | -4.25 | .001 | | | |
| | Time 10 | -8.95 | 2.08 | -13.05– -4.85 | -4.31 | 200 | -5.60 | <.001 | | | |
| | Time 11 | -8.00 | 2.08 | -12.10– -3.90 | -3.85 | 200 | -5.01 | .0002 | | | |
| | Completers | -5.48 | 7.20 | -20.54–9.58 | -0.76 | 19 | -1.52 | .456 | | | |
| | Residual | | | | | | | | 45.39 | 6.74 | 6.11–7.43 |

***(continued on p.291)***

**Table I11 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| DASS-A | Intercept | 29.57 | 6.22 | 17.30–41.85 | 4.75 | 200 | 2.81 | <.001 | 71.83 | 8.48 | 6.09–11.80 |
| | Time 2 | -4.57 | 1.74 | -8.01– -1.14 | -2.62 | 200 | -0.44 | .009 | | | |
| | Time 3 | -4.29 | 1.74 | -7.72– -0.85 | -2.46 | 200 | -0.41 | .015 | | | |
| | Time 4 | -5.05 | 1.74 | -8.48– -1.61 | -2.90 | 200 | -0.48 | .004 | | | |
| | Time 5 | -4.57 | 1.74 | -8.01– -1.14 | -2.62 | 200 | -0.44 | .009 | | | |
| | Time 6 | -6.19 | 1.74 | -9.63– -2.75 | -3.55 | 200 | -0.59 | .0005 | | | |
| | Time 7 | -10.19 | 1.74 | 13.63– -6.75 | -5.85 | 200 | -0.97 | <.001 | | | |
| | Time 8 | -6.67 | 1.74 | -10.10– -3.23 | -3.83 | 200 | -0.63 | .0002 | | | |
| | Time 9 | -7.81 | 1.74 | -11.25– -4.38 | -4.48 | 200 | -0.74 | <.001 | | | |
| | Time 10 | -6.67 | 1.74 | -10.10– -3.23 | -3.83 | 200 | -0.63 | .0002 | | | |
| | Time 11 | -8.29 | 1.74 | -11.72– -4.85 | -4.76 | 200 | -0.79 | <.001 | | | |
| | Completers | -8.47 | 6.23 | -21.92–4.98 | -1.32 | 19 | -0.81 | .203 | | | |
| | Residual | | | | | | | | 31.88 | 5.65 | 5.12–6.23 |
| DASS-S | Intercept | 26.81 | 5.79 | 15.40–38.22 | 4.63 | 200 | 2.65 | <.001 | 60.74 | 7.79 | 5.58–10.89 |
| | Time 2 | -2.95 | 1.82 | -6.55–0.65 | -1.62 | 200 | -0.29 | .107 | | | |
| | Time 3 | -2.19 | 1.82 | -5.79–1.41 | -1.20 | 200 | -0.22 | .231 | | | |
| | Time 4 | -2.29 | 1.82 | -5.88–1.31 | -1.25 | 200 | -0.23 | .212 | | | |
| | Time 5 | -4.38 | 1.82 | -7.98– -0.78 | -2.40 | 200 | -0.43 | .017 | | | |
| | Time 6 | -6.38 | 1.82 | -9.98– -2.78 | -3.50 | 200 | -0.63 | .0006 | | | |
| | Time 7 | -7.81 | 1.82 | -11.41– -4.21 | -4.28 | 200 | -0.77 | <.001 | | | |
| | Time 8 | -7.05 | 1.82 | -10.65– 3.45 | -3.86 | 200 | -0.70 | .0002 | | | |
| | Time 9 | -6.29 | 1.82 | -9.88– -2.69 | -3.45 | 200 | -0.62 | .0007 | | | |
| | Time 10 | -7.62 | 1.82 | -11.22– -4.02 | -4.18 | 200 | -0.75 | <.001 | | | |
| | Time 11 | -8.95 | 1.82 | -12.55– -5.35 | -4.91 | 200 | -0.89 | <.001 | | | |
| | Completers | -3.32 | 5.94 | -15.76–9.12 | -0.56 | 19 | -0.33 | .583 | | | |
| | Residual | | | | | | | | 34.95 | 5.91 | 5.36–6.52 |
| BSL-95 Global Factor | Intercept | 2.05 | 0.17 | 1.71–2.39 | 11.98 | 60 | 6.05 | <.001 | 0.32 | 0.56 | 0.38–0.83 |
| | Time 3 | -0.13 | 0.17 | -0.47–0.20 | -0.80 | 60 | -0.40 | .429 | | | |
| | Time 7 | -0.66 | 0.17 | -1.00– -0.32 | -3.90 | 60 | -1.94 | .0002 | | | |
| | Time 11 | -0.63 | 0.17 | -0.97– -0.30 | 03.75 | 60 | -1.87 | .0004 | | | |
| | Residual | | | | | | | | 0.30 | 0.55 | 0.46–0.65 |
| BSL-95 Self-Perception | Intercept | 1.85 | 0.19 | 1.47–2.24 | 9.74 | 60 | 5.10 | <.001 | 0.43 | 0.65 | 0.45–0.95 |
| | Time 3 | -0.20 | 0.18 | -0.56–0.16 | -1.11 | 60 | -0.54 | .272 | | | |
| | Time 7 | -0.73 | 0.18 | -1.09– -0.38 | -4.11 | 60 | -2.02 | .0001 | | | |
| | Time 11 | -0.68 | 0.18 | -1.04– -0.33 | -3.83 | 60 | -1.88 | .0003 | | | |
| | Residual | | | | | | | | 0.34 | 0.58 | 0.48–0.69 |
| BSL-95 Affect Regulation | Intercept | 2.37 | 0.19 | 1.98–2.76 | 12.20 | 60 | 6.01 | <.001 | 0.38 | 0.62 | 0.42–0.92 |
| | Time 3 | -0.12 | 0.20 | -0.52–0.28 | -0.61 | 60 | -0.31 | 0.545 | | | |
| | Time 7 | -0.70 | 0.20 | -1.09– -0.30 | -3.51 | 60 | -1.76 | .0009 | | | |
| | Time 11 | -0.71 | 0.20 | -1.11– -0.31 | -3.58 | 60 | -1.80 | .0007 | | | |
| | Residual | | | | | | | | 0.41 | 0.64 | 0.54–0.77 |
| BSL-95 Self-Destruction | Intercept | 2.01 | 0.24 | 1.54–2.48 | 8.54 | 60 | 4.71 | <.001 | 0.72 | 0.85 | 0.59–1.21 |
| | Time 3 | -0.21 | 0.21 | -0.62–0.21 | -1.02 | 60 | -0.49 | .311 | | | |
| | Time 7 | -0.82 | 0.21 | -1.23– -0.41 | -3.99 | 60 | -1.93 | .0002 | | | |
| | Time 11 | -0.84 | 0.21 | -1.25– -0.43 | -4.07 | 60 | -1.96 | .0001 | | | |
| | Residual | | | | | | | | 0.44 | 0.67 | 0.56–0.80 |
| BSL-95 Dysphoria | Intercept | 2.81 | 0.13 | 2.56–3.07 | 21.99 | 60 | 10.87 | <.001 | 0.17 | 0.41 | 0.27–0.61 |
| | Time 3 | 0.08 | 0.13 | -0.18–0.34 | 0.59 | 60 | 0.29 | .560 | | | |
| | Time 7 | -0.16 | 0.13 | -0.42–0.10 | -1.25 | 60 | -0.63 | .218 | | | |
| | Time 11 | -0.31 | 0.13 | -0.57– -0.05 | -2.38 | 60 | -1.19 | .021 | | | |
| | Residual | | | | | | | | 0.18 | 0.42 | 0.35–0.50 |
| BSL-95 Loneliness | Intercept | 2.01 | 0.21 | 1.58–2.43 | 9.44 | 60 | 4.60 | <.001 | 0.44 | 0.67 | 0.45–1.00 |
| | Time 3 | -0.04 | 0.22 | -0.48–0.40 | -0.20 | 60 | -0.10 | .843 | | | |
| | Time 7 | -0.59 | 0.22 | -1.03– -0.152 | -2.69 | 60 | -1.36 | .009 | | | |
| | Time 11 | -0.60 | 0.22 | -1.04– -0.164 | -2.74 | 60 | -1.38 | .008 | | | |
| | Residual | | | | | | | | 0.51 | 0.71 | 0.60–0.85 |
| BSL-95 Intrusion | Intercept | 1.24 | 0.17 | 0.90–1.58 | 7.36 | 60 | 3.69 | <.001 | 0.30 | 0.55 | 0.37–0.81 |
| | Time 3 | -0.17 | 0.17 | -0.51–0.17 | -1.00 | 60 | -0.50 | .319 | | | |
| | Time 7 | -0.57 | 0.17 | -0.91– -0.24 | -3.40 | 60 | -1.70 | .001 | | | |
| | Time 11 | 0.42 | 0.17 | -0.75– -0.08 | -2.47 | 60 | -1.23 | .016 | | | |
| | Residual | | | | | | | | 0.30 | 0.54 | 0.46–0.65 |

***(continued on p.292)***

**Table I11 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| BSL-95 Hostility | Intercept | 1.98 | 0.20 | 1.57–2.38 | 9.83 | 60 | 4.95 | <.001 | 0.43 | 0.66 | 0.45–0.97 |
| | Time 3 | -0.31 | 0.20 | -0.71–0.09 | -1.56 | 60 | -0.78 | .125 | | | |
| | Time 7 | -0.79 | 0.20 | -1.18– -0.39 | -3.95 | 60 | -1.97 | .0002 | | | |
| | Time 11 | -0.63 | 0.20 | -1.03– -0.24 | -3.19 | 60 | -1.59 | .002 | | | |
| | Residual | | | | | | | | 0.42 | 0.64 | 0.54–0.77 |
| BSL-95 Global Well-Being | Intercept | 44.29 | 4.25 | 35.79–52.78 | 10.43 | 60 | 5.03 | <.001 | 170.40 | 13.05 | 8.68–19.64 |
| | Time 3 | 3.33 | 4.46 | -5.58–12.25 | 0.75 | 60 | 0.38 | .457 | | | |
| | Time 7 | 10.00 | 4.46 | 1.09–18.91 | 2.24 | 60 | 1.14 | .029 | | | |
| | Time 11 | 9.52 | 4.46 | -0.61–18.44 | 2.14 | 60 | 1.08 | .037 | | | |
| | Residual | | | | | | | | 208.41 | 14.44 | 12.07–17.26 |
| IIP-32 Total T score | Intercept | 70.10 | 2.37 | 65.34–74.85 | 29.52 | 60 | 15.12 | <.001 | 62.99 | 7.94 | 5.43–11.61 |
| | Time 3 | -0.24 | 2.30 | -4.83–4.36 | -0.10 | 60 | -0.05 | .918 | | | |
| | Time 7 | -8.57 | 2.30 | -13.17– 03.97 | -3.73 | 60 | -1.85 | .0004 | | | |
| | Time 11 | -10.29 | 2.30 | -14.88– -5.69 | -4.48 | 60 | -2.22 | <.001 | | | |
| | Residual | | | | | | | | 55.45 | 7.45 | 6.23–8.91 |
| ISS Internal Shame | Intercept | 69.71 | 4.21 | 61.30–78.13 | 16.57 | 60 | 7.77 | <.001 | 152.15 | 12.34 | 8.05–18.90 |
| | Time 3 | -1.10 | 4.57 | -10.24–8.05 | -0.24 | 60 | -0.12 | .812 | | | |
| | Time 7 | -18.38 | 4.57 | -27.53– -9.23 | -4.02 | 60 | -2.05 | .0002 | | | |
| | Time 11 | -20.14 | 4.57 | -29.29– -10.99 | -4.40 | 60 | -2.25 | <.001 | | | |
| | Residual | | | | | | | | 219.68 | 14.82 | 12.39–17.73 |
| ISS Self-Esteem | Intercept | 9.14 | 0.94 | 7.27–11.02 | 9.77 | 60 | 5.51 | <.001 | 11.83 | 3.43 | 2.42–4.90 |
| | Time 3 | -0.52 | 0.79 | -2.11–1.06 | -0.66 | 60 | -0.32 | .510 | | | |
| | Time 7 | 0.76 | 0.79 | -0.82–2.34 | 0.96 | 60 | 0.46 | .339 | | | |
| | Time 11 | 1.48 | 0.79 | -0.11–3.06 | 1.87 | 60 | 0.89 | .067 | | | |
| | Residual | | | | | | | | 6.57 | 2.56 | 2.14–3.07 |
| RSES | Intercept | 9.62 | 1.00 | 7.62–11.62 | 9.63 | 60 | 5.26 | <.001 | 12.74 | 3.57 | 2.49–5.12 |
| | Time 3 | 0.43 | 0.88 | -1.34–2.20 | 0.48 | 60 | 0.23 | .630 | | | |
| | Time 7 | 3.81 | 0.88 | 2.04–5.58 | 4.31 | 60 | 2.08 | .0001 | | | |
| | Time 11 | 4.90 | 0.88 | 3.14–6.67 | 5.55 | 60 | 2.68 | <.001 | | | |
| | Residual | | | | | | | | 8.21 | 2.87 | 2.40–3.43 |
| DBT-WCCL DSS | Intercept | 1.55 | 0.09 | 1.37–1.74 | 16.77 | 60 | 9.21 | <.001 | 0.11 | 0.33 | 0.23–0.48 |
| | Time 3 | 0.08 | 0.08 | -0.08–0.24 | 1.00 | 60 | 0.48 | .320 | | | |
| | Time 7 | 0.30 | 0.08 | 0.14–0.46 | 3.69 | 60 | 1.78 | .0005 | | | |
| | Time 11 | 0.30 | 0.08 | 0.13–0.45 | 3.60 | 60 | 1.73 | .0007 | | | |
| | Residual | | | | | | | | 0.07 | 0.26 | 0.22–0.31 |
| DBT-WCCL DCS 1 | Intercept | 2.16 | 0.11 | 1.93–2.38 | 18.86 | 60 | 10.23 | <.001 | 0.16 | 0.41 | 0.28–0.58 |
| | Time 3 | 0.04 | 0.10 | -0.16–0.25 | 0.40 | 60 | 0.20 | .688 | | | |
| | Time 7 | -0.27 | 0.10 | -0.48– -0.07 | -2.67 | 60 | -1.30 | .010 | | | |
| | Time 11 | -0.40 | 0.10 | -0.60– -0.20 | -3.92 | 60 | -1.90 | .0002 | | | |
| | Residual | | | | | | | | 0.11 | 0.33 | 0.28–0.40 |
| DBT-WCCL DCS 2 | Intercept | 1.44 | 0.14 | 1.15–1.73 | 9.94 | 60 | 5.78 | <.001 | 0.30 | 0.54 | 0.38–0.77 |
| | Time 3 | 0.11 | 0.12 | -0.12–0.34 | 0.95 | 60 | 0.45 | .345 | | | |
| | Time 7 | 0.01 | 0.12 | -0.23–0.24 | 0.07 | 60 | 0.03 | .946 | | | |
| | Time 11 | -0.17 | 0.12 | -0.41–0.06 | -1.50 | 60 | -0.70 | .140 | | | |
| | Residual | | | | | | | | 0.14 | 0.38 | 0.32–0.45 |
| FMI | Intercept | 28.90 | 1.39 | 26.12–31.69 | 20.74 | 60 | 10.30 | <.001 | 20.02 | 4.47 | 3.02–6.63 |
| | Time 3 | -0.67 | 1.41 | -3.48–2.15 | -0.47 | 60 | -0.24 | .637 | | | |
| | Time 7 | 5.76 | 1.41 | 2.95–8.57 | 4.10 | 60 | 2.05 | .0001 | | | |
| | Time 11 | 7.71 | 1.41 | 4.90–10.53 | 5.49 | 60 | 2.75 | <.001 | | | |
| | Residual | | | | | | | | 20.77 | 4.56 | 3.81–5.45 |

DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

**Table I12**

*Summary of Goodness-of-Fit Statistics for Each Model – Data Completers*

| Outcome | $R^2$m | $R^2$c | AIC | BIC | LL |
|---|---|---|---|---|---|
| DERS | 0.3240 | 0.7935 | 1902.57 | 1950.02 | -937.29 |
| DERS NONACCEPT | 0.2766 | 0.6204 | 1363.85 | 1411.29 | -667.92 |
| DERS GOALS | 0.2106 | 0.7686 | 1150.70 | 1198.15 | -561.35 |
| DERS IMPULSE | 0.2603 | 0.7830 | 1223.57 | 1271.02 | -597.79 |
| DERS AWARE | 0.1110 | 0.7484 | 1184.16 | 1231.60 | -578.08 |
| DERS STRATEGIES | 0.2371 | 0.7933 | 1358.92 | 1406.36 | -665.46 |
| DERS CLARITY | 0.2739 | 0.7003 | 1129.74 | 1177.19 | -550.87 |
| DASS-D | 0.0715 | 0.6298 | 1580.87 | 1628.32 | -776.44 |
| DASS-A | 0.1088 | 0.7261 | 1505.90 | 1553.35 | -738.95 |
| DASS-S | 0.0817 | 0.6646 | 1521.34 | 1568.79 | -746.67 |
| BSL-95 Global Factor | 0.1240 | 0.5737 | 187.74 | 202.003 | -87.87 |
| BSL-95 Self-Perception | 0.1156 | 0.6103 | 199.90 | 214.20 | -93.95 |
| BSL-95 Affect Regulation | 0.1180 | 0.5420 | 211.42 | 225.71 | -99.71 |
| BSL-95 Self-Destruction | 0.1065 | 0.6581 | 226.41 | 240.70 | -107.21 |
| BSL-95 Dysphoria | 0.0613 | 0.5158 | 144.08 | 158.37 | -66.04 |
| BSL-95 Loneliness | 0.0812 | 0.5100 | 226.98 | 241.27 | -107.49 |
| BSL-95 Intrusion | 0.0756 | 0.5422 | 186.49 | 200.79 | -87.25 |
| BSL-95 Hostility | 0.0988 | 0.5586 | 213.82 | 228.12 | -100.91 |
| BSL-95 Global Well-Being | 0.0454 | 0.4748 | 707.40 | 721.70 | -347.70 |
| IIP-32 Total T score | 0.1585 | 0.6060 | 606.70 | 620.99 | -297.35 |
| ISS Internal Shame | 0.1934 | 0.5235 | 709.13 | 723.42 | -348.56 |
| ISS Self-Esteem | 0.0306 | 0.6539 | 443.91 | 458.20 | -215.95 |
| RSES | 0.1774 | 0.6777 | 459.14 | 473.43 | -223.57 |
| DBT-WCCL DSS | 0.0879 | 0.6482 | 77.54 | 91.84 | -32.77 |
| DBT-WCCL DCS 1 | 0.1118 | 0.6453 | 113.27 | 127.56 | -50.63 |
| DBT-WCCL DCS 2 | 0.0237 | 0.6816 | 140.15 | 154.44 | -64.07 |
| FMI | 0.2444 | 0.6153 | 525.48 | 539.77 | -256.74 |

DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

**Table I13**

*Results of the Linear Mixed-Effects Model utilizing REML Analyses for all Secondary Outcomes – Treatment Completers*

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| BSL-95 Global Factor | Intercept | 2.03 | 0.15 | 1.73–2.34 | 13.16 | 71 | 6.95 | <.001 | 0.34 | 0.58 | 0.42–0.82 |
| | Time 3 | -0.005 | 0.14 | -0.29–0.28 | -0.03 | 71 | -0.02 | .974 | | | |
| | Time 7 | -0.63 | 0.14 | -0.92– -0.35 | -4.44 | 71 | -2.17 | <.001 | | | |
| | Time 11 | 0.75 | 0.14 | -1.04– -0.46 | -5.16 | 71 | -2.55 | <.001 | | | |
| | Residual | | | | | | | | 0.26 | 0.51 | 0.43–0.60 |
| BSL-95 Self-Perception | Intercept | 1.81 | 0.17 | 1.47–2.14 | 10.76 | 71 | 5.71 | <.001 | 0.41 | 0.64 | 0.46–0.89 |
| | Time 3 | -0.05 | 0.15 | -0.36–0.26 | -0.33 | 71 | -0.16 | .744 | | | |
| | Time 7 | -0.70 | 0.15 | -1.01– -0.40 | -4.56 | 71 | -2.22 | <.001 | | | |
| | Time 11 | -0.77 | 0.16 | -1.08– -0.45 | -4.90 | 71 | -2.42 | <.001 | | | |
| | Residual | | | | | | | | 0.30 | 0.55 | 0.46–0.64 |
| BSL-95 Affect Regulation | Intercept | 2.37 | 0.18 | 2.00–2.73 | 12.80 | 71 | 6.66 | <.001 | 0.47 | 0.69 | 0.49–0.97 |
| | Time 3 | -0.04 | 0.17 | -0.39–0.31 | -0.23 | 71 | -0.11 | .819 | | | |
| | Time 7 | -0.71 | 0.17 | -1.06– -0.37 | -4.09 | 71 | -2.01 | .0001 | | | |
| | Time 11 | -0.88 | 0.18 | -1.23– -0.53 | -4.97 | 71 | -2.47 | <.001 | | | |
| | Residual | | | | | | | | 0.38 | 0.62 | 0.52–0.73 |
| BSL-95 Self-Destruction | Intercept | 1.98 | 0.21 | 1.56–2.40 | 9.39 | 71 | 5.30 | <.001 | 0.72 | 0.85 | 0.61–1.17 |
| | Time 3 | 0.01 | 0.18 | -0.34–0.36 | 0.06 | 71 | 0.03 | .955 | | | |
| | Time 7 | -0.69 | 0.18 | -1.04– -0.34 | -3.89 | 71 | -1.85 | .0002 | | | |
| | Time 11 | -0.90 | 0.18 | -1.26– -0.54 | -5.00 | 71 | -2.40 | <.001 | | | |
| | Residual | | | | | | | | 0.39 | 0.63 | 0.53–0.74 |
| BSL-95 Dysphoria | Intercept | 2.90 | 0.11 | 2.67–3.13 | 28.81 | 71 | 13.10 | <.001 | 0.18 | 0.42 | 0.30–0.59 |
| | Time 3 | 0.12 | 0.11 | -0.10–0.33 | 0.82 | 71 | 0.52 | .291 | | | |
| | Time 7 | -0.22 | 0.11 | -0.44– -0.003 | -2.19 | 71 | -0.99 | .048 | | | |
| | Time 11 | -0.36 | 0.11 | -0.58– -0.14 | -3.24 | 71 | -1.62 | .002 | | | |
| | Residual | | | | | | | | 0.15 | 0.39 | 0.33–0.45 |
| BSL-95 Loneliness | Intercept | 2.10 | 0.20 | 1.71–2.49 | 10.73 | 71 | 5.58 | <.001 | 0.53 | 0.73 | 0.52–1.02 |
| | Time 3 | 0.04 | 0.18 | -0.33–0.40 | 0.20 | 71 | 0.10 | 0.843 | | | |
| | Time 7 | -0.69 | 0.18 | -1.06– -0.33 | -3.76 | 71 | -1.84 | .0004 | | | |
| | Time 11 | -0.81 | 0.19 | -1.18– -0.43 | -4.31 | 71 | -2.15 | .0001 | | | |
| | Residual | | | | | | | | 0.43 | 0.65 | 0.55–0.77 |
| BSL-95 Intrusion | Intercept | 1.16 | 0.16 | 0.84–1.47 | 7.37 | 71 | 4.20 | <.001 | 0.40 | 0.63 | 0.46–0.88 |
| | Time 3 | -0.007 | 0.13 | -0.27–0.25 | -0.06 | 71 | -0.03 | .956 | | | |
| | Time 7 | -0.43 | 0.13 | -0.69– -0.17 | -3.27 | 71 | -1.54 | .002 | | | |
| | Time 11 | -0.51 | 0.13 | -0.77– -0.25 | -3.86 | 71 | -1.85 | .0002 | | | |
| | Residual | | | | | | | | 0.21 | 0.46 | 0.39–0.54 |
| BSL-95 Hostility | Intercept | 1.97 | 0.19 | 1.59–2.36 | 10.29 | 71 | 5.34 | <.001 | 0.51 | 0.71 | 0.51–1.00 |
| | Time 3 | -0.14 | 0.18 | -0.50–0.22 | -0.77 | 71 | -0.38 | .444 | | | |
| | Time 7 | -0.75 | 0.18 | -1.11– -0.38 | -4.11 | 71 | -2.02 | .0001 | | | |
| | Time 11 | -0.76 | 0.18 | -1.13– -0.39 | -4.12 | 71 | -2.05 | .0001 | | | |
| | Residual | | | | | | | | 0.41 | 0.64 | 0.55–0.76 |
| BSL-95 Global Well-Being | Intercept | 45.60 | 4.03 | 37.56–53.64 | 11.31 | 71 | 5.29 | <.001 | 167.28 | 12.93 | 8.75–19.12 |
| | Time 3 | 0.40 | 4.38 | -8.32–9.12 | 0.09 | 71 | 0.05 | .927 | | | |
| | Time 7 | 10.00 | 4.38 | 1.28–18.72 | 2.29 | 71 | 1.16 | .025 | | | |
| | Time 11 | 12.20 | 4.43 | 3.36–21.03 | 2.75 | 71 | 1.42 | .008 | | | |
| | Residual | | | | | | | | 239.30 | 15.47 | 13.12–18.24 |
| IIP-32 Total T score | Intercept | 70.12 | 2.08 | 65.97–74.27 | 33.67 | 71 | 10.67 | <.001 | 64.93 | 8.11 | 5.82–11.28 |
| | Time 3 | -0.08 | 1.85 | -3.77–3.61 | -0.04 | 71 | -0.09 | .966 | | | |
| | Time 7 | -8.24 | 1.85 | -11.93– -4.55 | -4.46 | 71 | -2.22 | <.001 | | | |
| | Time 11 | -10.64 | 1.87 | -14.38– -6.91 | -5.68 | 71 | -3.13 | <.001 | | | |
| | Residual | | | | | | | | 48.55 | 6.54 | 5.55–7.71 |

***(continued on p.295)***

**Table I13 (Continued)**

| Response Variable | Explanatory Variable Subset | Fixed effects | | | | | | | Random effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *β* | S.E. | 95% CI | *t* | *df* | *d* | *p* | Var. | SD | 95% CI |
| ISS Internal Shame | Intercept | 70.28 | 3.68 | 66.33–79.67 | 19.09 | 71 | 10.74 | <.001 | 215.57 | 14.68 | 10.61–20.31 |
| | Time 3 | -0.60 | 3.14 | -6.90– 6.09 | -0.19 | 71 | -0.06 | 0.849 | | | |
| | Time 7 | -14.60 | 3.14 | -23.72– -9.94 | -4.65 | 71 | -2.48 | <.001 | | | |
| | Time 11 | -20.59 | 3.18 | -25.96– -12.00 | -6.48 | 71 | -2.79 | <.001 | | | |
| | Residual | | | | | | | | 123.09 | 11.09 | 9.41–13.08 |
| ISS Self-Esteem | Intercept | 8.28 | 0.87 | 6.54–10.02 | 9.48 | 71 | 5.76 | <.001 | 13.69 | 3.70 | 2.71–5.06 |
| | Time 3 | -0.84 | 0.66 | -2.15–0.47 | -1.28 | 71 | -0.58 | .205 | | | |
| | Time 7 | 1.00 | 0.66 | -0.31–2.31 | 1.52 | 71 | 0.70 | .132 | | | |
| | Time 11 | 1.43 | 0.66 | 0.10–2.75 | 2.15 | 71 | 0.99 | .035 | | | |
| | Residual | | | | | | | | 5.38 | 2.32 | 1.97–2.73 |
| RSES | Intercept | 9.40 | 0.96 | 7.49–11.31 | 9.83 | 71 | 5.45 | <.001 | 14.33 | 3.79 | 2.73–5.25 |
| | Time 3 | -0.20 | 0.83 | -1.85–1.45 | -0.24 | 71 | -0.12 | 0.809 | | | |
| | Time 7 | 2.96 | 0.83 | 1.31–4.61 | 3.59 | 71 | 1.72 | .0006 | | | |
| | Time 11 | 4.30 | 0.84 | 2.64–5.97 | 5.15 | 71 | 2.50 | <.001 | | | |
| | Residual | | | | | | | | 8.51 | 2.92 | 2.47–3.44 |
| DBT-WCCL DSS | Intercept | 1.55 | 0.08 | 1.38–1.71 | 18.32 | 71 | 18.32 | <.001 | 0.12 | 0.34 | 0.25–0.47 |
| | Time 3 | -0.09 | 0.07 | -0.09–0.19 | 0.74 | 71 | 0.74 | .355 | | | |
| | Time 7 | 0.20 | 0.07 | 0.20–0.48 | 4.83 | 71 | 4.83 | <.001 | | | |
| | Time 11 | 0.19 | 0.07 | 0.19–0.47 | 4.62 | 71 | 4.62 | <.001 | | | |
| | Residual | | | | | | | | 0.06 | 0.25 | 0.21–0.29 |
| DBT-WCCL DCS 1 | Intercept | 2.13 | 0.10 | 1.94–2.32 | 22.02 | 71 | 11.62 | <.001 | 0.13 | 0.37 | 0.26–0.51 |
| | Time 3 | 0.04 | 0.09 | -0.14–0.22 | 0.48 | 71 | 0.23 | .635 | | | |
| | Time 7 | -0.25 | 0.09 | -0.43– -0.07 | -2.80 | 71 | -1.37 | .007 | | | |
| | Time 11 | -0.40 | 0.09 | -0.58– -0.22 | -4.42 | 71 | -2.19 | <.001 | | | |
| | Residual | | | | | | | | 0.10 | 0.32 | 0.27–0.37 |
| DBT-WCCL DCS 2 | Intercept | 1.47 | 0.15 | 1.18–1.76 | 10.10 | 71 | 6.45 | <.001 | 0.40 | 0.64 | 0.47–0.86 |
| | Time 3 | 0.06 | 0.10 | -0.14–0.26 | 0.59 | 71 | 0.26 | .555 | | | |
| | Time 7 | -0.007 | 0.10 | -0.21–0.20 | -0.07 | 71 | -0.03 | .948 | | | |
| | Time 11 | -0.25 | 0.10 | -0.45– -0.04 | -2.43 | 71 | -1.09 | .018 | | | |
| | Residual | | | | | | | | 0.13 | 0.36 | 0.30–0.42 |
| FMI | Intercept | 28.32 | 1.30 | 25.73–30.91 | 21.78 | 71 | 11.46 | <.001 | 23.99 | 4.90 | 3.49–6.88 |
| | Time 3 | -0.40 | 1.21 | -2.81–2.01 | -0.33 | 71 | -0.16 | .742 | | | |
| | Time 7 | 5.16 | 1.21 | 2.75–7.57 | 4.27 | 71 | 2.09 | .0001 | | | |
| | Time 11 | 7.52 | 1.22 | 5.08–9.96 | 6.14 | 71 | 3.04 | <.001 | | | |
| | Residual | | | | | | | | 18.26 | 4.27 | 3.62–5.04 |

*Note.* Based on 99 observations and 25 groups. DERS = Difficulties in Emotion Regulation Scale; NONACCEPT = Nonacceptance of emotional responses; GOALS = Difficulty engaging in goal-directed behaviour; IMPULSE = Impulse control difficulties; AWARENESS = Lack of emotional awareness; STRATEGIES = Limited access to emotion regulation strategies; CLARITY = Lack of emotional clarity; DASS-21 = Depression, Anxiety and Stress Scale-21; BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

**Table I14**

*Summary of Goodness-of-Fit Statistics for Each Model – Treatment Completers (Secondary Outcomes only)*

| Outcome | $R^2m$ | $R^2c$ | AIC | BIC | LL |
|---|---|---|---|---|---|
| BSL-95 Global Factor | 0.1532 | 0.6277 | 209.66 | 219.96 | -100.83 |
| BSL-95 Self-Perception | 0.1532 | 0.6429 | 223.77 | 239.09 | -105.88 |
| BSL-95 Affect Regulation | 0.1536 | 0.6232 | 245.34 | 260.67 | -116.67 |
| BSL-95 Self-Destruction | 0.1299 | 0.6917 | 256.42 | 271.75 | -122.21 |
| BSL-95 Dysphoria | 0.0958 | -0.5864 | 155.12 | 170.44 | -71.56 |
| BSL-95 Loneliness | 0.1362 | 0.6145 | 255.97 | 271.29 | -121.98 |
| BSL-95 Intrusion | 0.0820 | 0.6835 | 198.53 | 213.85 | -93.26 |
| BSL-95 Hostility | 0.1155 | 0.6030 | 252.75 | 268.08 | -120.38 |
| BSL-95 Global Well-Being | 0.0698 | 0.4549 | 846.63 | 861.95 | -417.32 |
| IIP-32 Total T score | 0.1745 | 0.6746 | 698.15 | 713.47 | -343.07 |
| ISS Internal Shame | 0.1902 | 0.7057 | 801.34 | 816.66 | -394.67 |
| ISS Self-Esteem | 0.0395 | 0.7291 | 511.98 | 527.30 | -249.99 |
| RSES | 0.1401 | 0.6796 | 546.71 | 562.03 | -267.35 |
| DBT-WCCL DSS | 0.1186 | 0.6998 | 80.03 | 95.36 | -34.01 |
| DBT-WCCL DCS 1 | 0.1244 | 0.6251 | 119.96 | 135.28 | -53.98 |
| DBT-WCCL DCS 2 | 0.0254 | 0.7654 | 161.49 | 176.81 | -74.75 |
| FMI | 0.2130 | 0.6599 | 614.14 | 629.47 | -301.07 |

BSL-95 = Borderline Symptom List; IIP-32 = Inventory of Interpersonal Problems-32; ISS = Internalized Shame Scale; RSES = Rosenberg self-esteem scale; DBT-WCCL = DBT-Ways of Coping Checklist; DSS = Skills use scale; DCS 1 = Dysfunctional coping scale 1 (general dysfunctional coping factor); DCS 2 = Dysfunctional coping scale 2 (blaming others factor); FMI = Freiburg mindfulness inventory

## Appendix J

## Demographic Questionnaire for Study 2

Participant No.: _____

Date: _____

1) Age: _____ *(in years)*

2) Sex *(indicate where appropriate)*:
☐ Male ☐ Female

3) What is your racial or ethnic origin?
☐ Chinese ☐ Malay ☐ Indian ☐ Eurasian Other: _____ *(please specify)*

4) How many years of education have you completed? _____ *(in years)*

5) What is your marital status?
☐ Single ☐ In a relationship but not living together ☐ Cohabiting ☐ Married
☐ Separated/ divorced ☐ Widow/widower

6) What is your occupation (even if currently unemployed)?
_____

7) Have you ever been hospitalized for emotion problems?
☐ Yes ☐ No (proceed to Qn. 9)

8) If yes to Qn. 7, what were you hospitalized for? (Tick off all applicable)
☐ Anxiety ☐Depression ☐ Suicide ☐ Alcohol or chemical dependence ☐ Psychosis
☐ Other: _____ *(please specify)*

9) How many times have you received treatment, therapy or counselling for mental, emotional or family problems? _____ *(please estimate number of sessions)*

10) Did you receive medication for nerves, depression or emotional problems?
☐ Yes ☐ No
*If yes, please list all:*
_____

11) Is there a family history of psychological concerns?
☐ Yes ☐ No
*If yes, please specify:*
_____

12) How would you rate your social support (family, friends, etc.)?
☐ Extremely unsupportive
☐ A little supportive
☐ Somewhat supportive
☐ Quite supportive
☐ Very supportive

## Appendix K

## Interview Schedule for Study 2

Participant No.: _____

Date of Interview: _____

Completed ME Program (**Y**/**N**): _____

No. of sessions of ME Program that participant completed: _____

Reasons for Program non-completion, if any: _____

_____

**Note to Interviewer**: Use this information as a guide. Spend more time on sections that are more relevant to the participant and less time on areas that are less important. Each section is meant to start broadly and the dialogue will narrow as the discussion progresses. If the participant wants to talk more than the time allowed, you can encourage the participant to talk with their individual therapist if you have gathered the information that you already need. For example, you can say *'I'm glad you brought that up and I think individual therapy can help with those concerns. In the interest of finishing this session on time, would you be willing to bring those ideas up with your therapist?'*

| ***Reminder:** Turn on audio recording after obtaining consent, and before starting the |
|---|

**1. Welcome and Introductions (2 mins)**

*Thank you for consenting to this interview, and taking the time to contribute so that we can improve the program for others intending to join it in the future. The purpose of today is for us to talk together about how your time in the DBT program was like.*

**2. Tell me about your experience of being in the skills training group.**

Prompts:

- What were the positive experiences? What didn't go so well?
- With other group members? With the group leaders?
- What was it like to complete the diary card, and other homework (e.g., worksheets, skills practice)?
- *[Check if interviewee was part of a closed or open-format group; explain differences if needed]* How did you find being part of a group where members started and ended the program together/new members joined at different modules? How would you find it if it was the case where *[the other way around]*?
- *[Check if interviewee completed the group program/not]* Were there any group mates who dropped out midway, and how did that affect you? *OR* What led you to decide to discontinue the group program?

**3. What impact has the skills group had on your life?**

Prompts:

- What are the main things you have learnt?
- In what ways has it changed the way you respond in emotional situations?
- In what ways has it changed things in your relationships?
- How long after the group ended were you still using the skills?
- If you had to pick one most important DBT skill for yourself, what would it be and why?

**4. How did the individual therapy support your learning in the skills group?**

Prompts:

- Did your individual therapist do DBT in these sessions? *[if interviewee asks for clarification, briefly explain that some therapists use the individual sessions for reviewing and applying the skills taught in group]*
- In what ways does that (whether client answers Y/N) help or hinder the learning of skills?
- Some of our clients have commented that the timing in which they started the skills group seemed to make a difference (e.g., in the earlier phase of their individual therapy, or after they had been through a good dosage of individual therapy). Can you relate to this?
    - How long were you seeing your individual therapist for, before starting group?
    - Did you both discuss what your therapy plan would be, after this? (e.g., frequency of sessions, type of therapy)

**5. How has the skills group changed your experience in individual therapy?**

Prompts:

- What, if anything, changed in terms of the structure of your individual therapy sessions? In terms of therapy goals?
- In what ways does skills training help or hinder individual therapy?

**6. How has phone coaching helped you with what you've learnt in the skills group?**

Prompts:

- Did you access phone coaching?
- If No, what would have helped you use it more? By any chance, did you run into any situations where you considered using phone coaching?
- If Yes: What about it was helpful or not helpful?
    - Tell me about a time when you tried using a skill that was recommended, but it did not work so well.
    - Tell me about a time the recommendation did work.

**7. As you may know, starting on DBT means being seen by a community of therapists [explain the consultation team if needed]. What was your experience of this like?**

**8. If you could give any recommendations to IMH on how to improve the 3-month program, what would these be?**

Prompts:

- In terms of any of the modes of therapy?
- In terms of referral and orientation processes? (e.g., pretreatment)
- In terms of collecting direct feedback?
- What is an ideal duration for the group program – e.g., would you have signed up if it was 16 or 26 weeks?

**Final prompts**, ***only*** if this question is unanswered by the rest of the interview:
Overall, what were the main benefits of doing the DBT program in addition to individual therapy?*[If the interviewee has experience with a different therapy approach]* In your opinion, how do you find DBT in comparison to other types of therapies? What differences and/or similarities stick out for you?

**9. Ending the interview**

*Thank you for sharing your experiences with me today. It helped me understand your experience better. I hope the ME group was ultimately was helpful for you. Was there anything that you had wanted to talk about, but we did not get to cover? Do you have any questions before we end today?*

| |
|---|
| ***Closing Reminder:** Check with interviewee if he/she would be open to being contacted for a follow-up visit or not. |

## Appendix L

## Member Check Form for Study 2

*Instructions: Please read through each of the themes below and provide comments for each one.*

**Theme 1: Starting and ending**
Readiness to start on DBT depended on timing, personal scheduling and trust in the individual therapist. The program was not widely advertised and not offered in other hospitals, but orientation helped in providing clarity and setting expectations. Endings were sometimes difficult and follow-up involved reviewing therapy plans depending on whether someone completed the program.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 2: Skills group is useful but busy**

The group was crammed; skills teaching could feel rushed and could be seen as a chore. Because it was still helpful and/or 12 weeks felt insufficient, there was interest in getting more DBT (either by extending the program or attending a Part 2).

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 3: Skills are valuable and require continuity in practice**
Each person gained a repertoire of useful skills that they found more valuable if it was immediately relevant for a personal situation. The majority recognized that persisting in skills practice is important (many continued to refer to handouts), however this was challenging if they experienced too many crises.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 4: Navigating a shared space in group was complex but beneficial**
People were mindful of interactions, including those with therapists and not just peers. Despite some tension at times, the shared space provided connection through involved joint learning, hope, empathy and vulnerability in sharing. Moving from a closed (fixed membership) to open group format (members and therapists are rotated) decreased bonding over time. Many wanted deeper connections, which were missed because of the online platform of skills training.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 5: Reciprocity between group and individual therapy**

Some found DBT to be structured differently from other therapies. In general, the program was a positive experience that allowed gains beyond individual therapy alone. For many, individual therapy (DBT and non-DBT) began to focus more on skills. Individual therapy also solved problems to ensure that people kept up with the group material, and aided in making sense of emotional situations that could not be attended to in group.

Although DBT consists of 4 therapy modes (i.e., individual, group, phone coaching and the therapist team), everyone's experiences of the last mode were different – some appreciated the exposure to different therapists' styles while others did not sense the presence of a therapist team. A small number of people focused on one mode at the expense of another. The phone coaching mode will be discussed in Theme 7.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 6: Changes in skilfulness**

Improvements in self-reflection led to better emotion regulation and less reactivity (often recognized by family, colleagues and friends). Other internal changes included more confidence, willingness, consideration of others, self-kindness and less self-criticism, sense of entitlement and perfectionism. Avoiding emotions was observed to be present for people who did not see such changes. More than half spoke about using skills in interpersonal situations, although their impact on actual relationships differed from person to person. Behaviours of others (that are outside one's control) could make someone feel helpless despite now being more skilful.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

**Theme 7: Phone coaching was underutilized**

Crisis was the biggest reason for using the service, although majority did not use it. The waiting time for return calls deterred people; other reasons were having needs met through other therapy modes, not liking phone calls or texting, forgetting about the service, being too busy or unfamiliarity with the phone coach. Despite these, having phone coaching available was reassuring.

*Based on your experience, in what ways do you agree or disagree with this theme?*

*How does this theme fit with your experience of participating in the group?*

*How clear do you find the theme and its description?*

## Appendix M

## Questionnaire Battery for Study 3

1) Today's Date: |___|___|___|___|___|___| (dd/mm/yr)

2) Sex *(indicate where appropriate)*: ☐ Male ☐ Female

3) Your Birth Year: 19|___|___|

3) Your racial or ethnic origin:
☐ Chinese ☐ Malay ☐ Indian ☐ Eurasian
☐ Other (including more than one race): _____ *(please specify)*

4) Your highest degree status:
☐ Bachelor's degree ☐ Master's degree ☐ Postdoctoral degree or equivalent ☐ Medical degree
☐ Other: _____ *(please specify)*

5) Your discipline/ profession:
☐ Psychology ☐ Psychiatry ☐ Social work ☐ Counselling ☐ Case management ☐ Management

6) Years of experience in clinical practice:
☐ 0 to 11 months ☐ 1 to 2+ years ☐ 3 to 5 years ☐ 6 to 10 years ☐ over 10 years

7) Years of experience in practicing dialectical behaviour therapy (DBT):
☐ 0 to 11 months ☐ 1 to 2+ years ☐ 3 to 5 years ☐ 6 to 10 years ☐ over 10 years

8) Training background in DBT:
☐ Yes ☐ No

9) If you answered yes to Qn. 8, mark all the boxes that apply to your exposure to DBT:
☐ Online training
☐ On-the-job training/supervision from a DBT-trained clinician
☐ Reading a protocol or manual
☐ Attended a formal DBT training/workshop
☐ Other: _____ *(please specify)*

10) Involvement in DBT (mark all that apply):
☐ Part of an active DBT program
☐ Part of a previous DBT program that was deactivated
☐ Previously part of a DBT training program
☐ Consulting with an overseas DBT team
☐ Consulting with an overseas DBT expert
☐ Not currently part of a DBT team; practicing individually
☐ Providing DBT consultation/ supervision
☐ Currently training in DBT
☐ Co-managing client(s) with a DBT therapist
☐ Referrer to a DBT program
☐ Providing administrative/ management support

Organisational Readiness to Change Assessment

| **Please rate the strength of your agreement with each of the following statements, from 1 (strongly disagree) to 5 (strongly agree).** | **Strongly Disagree** | **Disagree** | **Neither Agree nor Disagree** | **Agree** | **Strongly Agree** | **Do not know/ Not Applicable** |
|---|---|---|---|---|---|---|
| 1. Senior leadership/ clinical management in your organization reward clinical innovation and creativity to improve patient care | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. Senior leadership/ clinical management in your organization solicit opinions of clinical staff regarding decisions about patient care | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Senior leadership/ clinical management in your organization seek ways to improve patient education and increase patient participation in treatment | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Staff members in your organization have a sense of personal responsibility for improving patient care and outcomes | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. Staff members in your organization cooperate to maintain and improve effectiveness of patient care | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. Staff members in your organization are willing to innovate and/or experiment to improve clinical procedures | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. Staff members in your organization are receptive to change in clinical processes | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. Senior leadership/ clinical management in your organization provide effective management of continuous improvement of patient care | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. Senior leadership/ clinical management in your organization clearly define areas of responsibility and authority for clinical managers and staff | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. Senior leadership/ clinical management in your organization promote team building to solve clinical care problems | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. Senior leadership/ clinical management in your organization promote communication among clinical services and units | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12. Senior leadership/ clinical management in your organization provide staff with information on performance measures and guidelines | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. Senior leadership/ clinical management in your organization establish clear goals for patient care processes and outcomes | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. Senior leadership/ clinical management in your organization provide staff members with feedback/data on effects of clinical decisions | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Senior leadership/ clinical management in your organization hold staff members accountable for achieving results | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. Opinion leaders in your organization believe that the current practice patterns can be improved | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. Opinion leaders in your organization encourage and support changes in practice patterns to improve patient care | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. Opinion leaders in your organization are willing to try new clinical protocols | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. Opinion leaders in your organization work cooperatively with senior leadership/ clinical management to make appropriate changes | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. In general in my organization, when there is agreement that change needs to happen, we have the necessary support in terms of budget or financial resources | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. In general in my organization, when there is agreement that change needs to happen, we have the necessary support in terms of training | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. In general in my organization, when there is agreement that change needs to happen, we have the necessary support in terms of facilities | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. In general in my organization, when there is agreement that change needs to happen, we have the necessary support in terms of staffing | 1 | 2 | 3 | 4 | 5 | 6 |

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Context Assessment Index

| **For each of the following statements, please put a cross in one box only.** [a]Health care practitioners; [b]Multidisciplinary team. | **Strongly Agree** | **Agree** | **Disagree** | **Strongly Disagree** |
|---|---|---|---|---|
| 1. Personal and professional boundaries between HCPs are maintained | | | | |
| 2. Decisions on care and management are clearly documented by all staff | | | | |
| 3. A proactive approach to care is taken | | | | |
| 4. All aspects of care/treatment are based on evidence of best practice | | | | |
| 5. The clinical team leader acts as a role model of good practice | | | | |
| 6. HCPs provide opportunities for patients to participate in decisions about their own care | | | | |
| 7. Education is a priority | | | | |
| 8. There are good working relations between clinical and non-clinical staff | | | | |
| 9. Staff receive feedback on the outcomes of complaints | | | | |
| 10. HCPs in the MDT have equal authority in decision making | | | | |
| 11. Audit and/or research findings are used to develop practice | | | | |
| 12. A staff performance review process is in place that enables reflection on practice and goal-setting and is regularly reviewed | | | | |
| 13. Staff have explicit understanding of their own attitudes and beliefs toward the provision of care | | | | |
| 14. Patients are encouraged to be active participants in their own care | | | | |
| 15. There is high regard for patients privacy and dignity | | | | |
| 16. HCPs and health care support workers understand each others' role | | | | |
| 17. The management structure is democratic and inclusive | | | | |
| 18. Appropriate information (large written print, tapes, etc.) is accessible to patients | | | | |
| 19. HCPs and patients work as partners, providing individual patient care | | | | |
| 20. Care is based on a comprehensive assessment | | | | |

| | | | | |
|---|---|---|---|---|
| 21. Challenges to practice are supported and encouraged by clinical team leaders and staff managers | | | | |
| 22. Discussions are planned between HCPs and patients | | | | |
| 23. The development of staff expertise is viewed as a priority by clinical team leaders | | | | |
| 24. Staff use reflective processes (e.g., action learning, clinical supervision, or reflective diaries) to evaluate and develop practice | | | | |
| 25. Organisational management has high regard for staff autonomy | | | | |
| 26. Staff welcome and accept cultural diversity | | | | |
| 27. Evidence-based knowledge on care is available to staff | | | | |
| 28. Patients have choice in assessing, planning, and evaluating their care and treatment | | | | |
| 29. HCPs have the opportunity to consult with specialists | | | | |
| 30. HCPs feel empowered to develop practice | | | | |
| 31. Clinical team leaders create an environment conducive to the development and sharing of ideas | | | | |
| 32. Guidelines and protocols based on evidence of best practice (patient experience, clinical experience, and research) are available | | | | |
| 33. Patients are encouraged to participate in feedback on care, culture, and systems | | | | |
| 34. Resources are available to provide evidence-based care | | | | |
| 35. The organisation is non-hierarchical | | | | |
| 36. HCPs share common goals and objectives about patient care | | | | |
| 37. Structured programmes of education are available to all HCPs | | | | |

Available at: https://doi.org/10.1111/j.1741-6787.2008.00130.x

TCU ORC-S/D Screener Question

Please indicate the description that is most representative of your current role as a therapy service provider:

☐ My primary role is that of an individual therapist/ group skills trainer
☐ My primary role is that of an administrator/ manager/ program director/ therapy supervisor/ support staff

Texas Christian University Organizational Readiness for Change – Treatment Staff Version

**This survey asks questions about how you see yourself as a therapist and how you see your program. If you are a program director or supervisor, please click the <back> button ('<<') at the bottom of this page and ensure that you have selected the second option instead.**

**Please rate the items according to the context that you are based in. That is, where the terms 'program staff' and 'program' are used, please rate the DBT team/ program if your setting has one, or else rate the team of therapists/ general clinical program that you run. Where terms are used more broadly, e.g., 'staff', or 'here', you are invited to rate the general clinical program that the DBT practitioner may be based in (e.g., at a private clinic, a public hospital, an educational or rehabilitation institution, etc), if any.**

| **To complete the form, please mark your answers by completely filling in the appropriate circles. If you do not feel comfortable giving an answer to a particular statement, you may skip it and move on to the next statement. If an item does not apply to you or your workplace, leave it blank.** | **Disagree Strongly** | **Disagree** | **Uncertain** | **Agree** | **Agree Strongly** |
|---|---|---|---|---|---|
| **Your program needs additional guidance in –** | | | | | |
| 1. assessing client needs | ○ | ○ | ○ | ○ | ○ |
| 2. matching needs with services | ○ | ○ | ○ | ○ | ○ |
| 3. increasing program participation by clients | ○ | ○ | ○ | ○ | ○ |
| 4. measuring client performance | ○ | ○ | ○ | ○ | ○ |
| 5. developing more effective group sessions | ○ | ○ | ○ | ○ | ○ |
| 6. raising overall quality of therapy | ○ | ○ | ○ | ○ | ○ |
| 7. using client assessments to guide clinical and program decisions | ○ | ○ | ○ | ○ | ○ |
| 8. using client assessments to document program effectiveness | ○ | ○ | ○ | ○ | ○ |
| **You need more training for –** | | | | | |
| 9. assessing client problems and needs | ○ | ○ | ○ | ○ | ○ |
| 10. increasing client participation in treatment | ○ | ○ | ○ | ○ | ○ |
| 11. monitoring client progress | ○ | ○ | ○ | ○ | ○ |
| 12. improving rapport with clients | ○ | ○ | ○ | ○ | ○ |
| 13. improving client thinking and problem solving skills | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| improving behavioral management of clients | ○ | ○ | ○ | ○ | ○ |
| improving cognitive focus of clients during group therapy | ○ | ○ | ○ | ○ | ○ |
| using computerized client assessments | ○ | ○ | ○ | ○ | ○ |
| **Current pressures to make program changes come from –** | | | | | |
| 14. clients in the program | ○ | ○ | ○ | ○ | ○ |
| 15. program staff members | ○ | ○ | ○ | ○ | ○ |
| 16. program supervisors or managers | ○ | ○ | ○ | ○ | ○ |
| 17. agency board members | ○ | ○ | ○ | ○ | ○ |
| 18. community action groups | ○ | ○ | ○ | ○ | ○ |
| 19. funding and oversight agencies | ○ | ○ | ○ | ○ | ○ |
| 20. accreditation or licensing authorities | ○ | ○ | ○ | ○ | ○ |
| **How strongly do you agree or disagree with each of the following statements?** | | | | | |
| 21. You prefer training content that is based on scientific evidence | ○ | ○ | ○ | ○ | ○ |
| 22. Your offices and equipment are adequate | ○ | ○ | ○ | ○ | ○ |
| 23. You have the skills needed to conduct effective group therapy | ○ | ○ | ○ | ○ | ○ |
| 24. Some staff get confused about the main goals for this program | ○ | ○ | ○ | ○ | ○ |
| 25. Staff here all get along very well | ○ | ○ | ○ | ○ | ○ |
| 26. Psychodynamic theory is commonly used in your therapy here | ○ | ○ | ○ | ○ | ○ |
| 27. You often has trouble implementing concepts learned at conferences | ○ | ○ | ○ | ○ | ○ |
| 28. Program staff understand how this program fits as part of the treatment system in your community | ○ | ○ | ○ | ○ | ○ |
| 29. Treatment planning decisions for clients here often have to be revised by a therapist supervisor | ○ | ○ | ○ | ○ | ○ |
| 30. Staff training and continuing education are priorities at this program | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 31. You frequently share your knowledge of new therapy ideas with other staff | ○ | ○ | ○ | ○ | ○ |
| 32. You were satisfied with the training offered at workshops available to you last year | ○ | ○ | ○ | ○ | ○ |
| 33. You used the Internet to communicate with other treatment professionals (e.g., list serves, bulletin boards, chat rooms) in the past month | ○ | ○ | ○ | ○ | ○ |
| 34. Management here full trusts your professional judgment | ○ | ○ | ○ | ○ | ○ |
| 35. Pharmacotherapy and medications are important parts of this program | ○ | ○ | ○ | ○ | ○ |
| 36. There is too much friction among staff members | ○ | ○ | ○ | ○ | ○ |
| 37. Some staff members here resist any type of change | ○ | ○ | ○ | ○ | ○ |
| 38. Ideas and suggestions from staff get fair consideration by program management | ○ | ○ | ○ | ○ | ○ |
| 39. Staff generally regard you as a valuable source of information | ○ | ○ | ○ | ○ | ○ |
| 40. You have easy access for using the Internet at work | ○ | ○ | ○ | ○ | ○ |
| 41. The staff here always works together as a team | ○ | ○ | ○ | ○ | ○ |
| 42. Client assessments here are usually conducted using a computer | ○ | ○ | ○ | ○ | ○ |
| 43. Your duties are clearly related to the goals of this program | ○ | ○ | ○ | ○ | ○ |
| 44. You learned new skills or techniques at a professional conference in the past year | ○ | ○ | ○ | ○ | ○ |
| 45. You consistently plan ahead and carry out your plans | ○ | ○ | ○ | ○ | ○ |
| 46. You are under too many pressures to do your job effectively | ○ | ○ | ○ | ○ | ○ |
| 47. Therapists here are given broad authority in treating their own clients | ○ | ○ | ○ | ○ | ○ |
| 48. This program encourages and supports professional growth | ○ | ○ | ○ | ○ | ○ |
| 49. Behavior modification (contingency management) is used with many of your clients here | ○ | ○ | ○ | ○ | ○ |
| 50. You read about new techniques and treatment information each month | ○ | ○ | ○ | ○ | ○ |
| 51. Staff here are always quick to help one another when needed | ○ | ○ | ○ | ○ | ○ |
| 52. Computer problems are usually repaired promptly at this program | ○ | ○ | ○ | ○ | ○ |
| 53. Novel treatment ideas by staff are discouraged | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 54. There are enough therapists here to meet current client needs | ○ | ○ | ○ | ○ | ○ |
| 55. The budget here allows staff to attend professional conferences each year | ○ | ○ | ○ | ○ | ○ |
| 56. You have enough opportunities to keep your therapy skills up-to-date | ○ | ○ | ○ | ○ | ○ |
| 57. Mutual trust and cooperation among staff in this program are strong | ○ | ○ | ○ | ○ | ○ |
| 58. Most client records here are computerized | ○ | ○ | ○ | ○ | ○ |
| 59. You are willing to try new ideas even if some staff members are reluctant | ○ | ○ | ○ | ○ | ○ |
| 60. Learning and using new procedures are easy for you | ○ | ○ | ○ | ○ | ○ |
| 61. This program operates with clear goals and objectives | ○ | ○ | ○ | ○ | ○ |
| 62. Staff members often show signs of stress and strain | ○ | ○ | ○ | ○ | ○ |
| 63. You have staff meetings weekly | ○ | ○ | ○ | ○ | ○ |
| 64. You usually accomplish whatever you set your mind on | ○ | ○ | ○ | ○ | ○ |
| 65. It is easy to change procedures here to meet new conditions | ○ | ○ | ○ | ○ | ○ |
| 66. Therapists here often try out different techniques to improve their effectiveness | ○ | ○ | ○ | ○ | ○ |
| 67. You used the Internet to access therapy or treatment information in the past month | ○ | ○ | ○ | ○ | ○ |
| 68. The formal and informal communication channels here work very well | ○ | ○ | ○ | ○ | ○ |
| 69. Program policies here limit staff access to the Internet and use of e-mail | ○ | ○ | ○ | ○ | ○ |
| 70. Offices here allow the privacy needed for individual therapy | ○ | ○ | ○ | ○ | ○ |
| 71. You are sometimes too cautious or slow to make changes | ○ | ○ | ○ | ○ | ○ |
| 72. Staff members are given too many rules here | ○ | ○ | ○ | ○ | ○ |
| 73. You feel a lot of stress here | ○ | ○ | ○ | ○ | ○ |
| 74. Manualized or structured treatments (e.g., 12-step theory, as with AA/NA) are followed by many of the therapists here | ○ | ○ | ○ | ○ | ○ |
| 75. Program staff are always kept well informed | ○ | ○ | ○ | ○ | ○ |
| 76. The heavy workload here reduces program effectiveness | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 77. You regularly read professional journal articles or books on therapy | ○ | ○ | ○ | ○ | ○ |
| 78. Communications with other programs that have similar interests would help | ○ | ○ | ○ | ○ | ○ |
| 79. Other staff often ask your advice about program procedures | ○ | ○ | ○ | ○ | ○ |
| 80. More open discussions about program issues are needed here | ○ | ○ | ○ | ○ | ○ |
| 81. This program holds regular in-service training | ○ | ○ | ○ | ○ | ○ |
| 82. You learned new clinical skills or techniques from manuals or other self-education materials in the past year | ○ | ○ | ○ | ○ | ○ |
| 83. You frequently hear good staff ideas for improving treatment | ○ | ○ | ○ | ○ | ○ |
| 84. Other staff often ask for your opinions about therapy and treatment issues | ○ | ○ | ○ | ○ | ○ |
| 85. You are effective and confident in doing your job | ○ | ○ | ○ | ○ | ○ |
| 86. You have a computer to use in your personal office space at work | ○ | ○ | ○ | ○ | ○ |
| 87. Some staff here do not do their fair share of work | ○ | ○ | ○ | ○ | ○ |
| 88. A larger support staff is needed to help meet program needs | ○ | ○ | ○ | ○ | ○ |
| 89. The general attitude here is to use new and changing technology | ○ | ○ | ○ | ○ | ○ |
| 90. You do a good job of regularly updating and improving your skills | ○ | ○ | ○ | ○ | ○ |
| 91. Staff members always feel free to ask questions and express concerns in this program | ○ | ○ | ○ | ○ | ○ |
| 92. You have the skills needed to conduct effective individual therapy | ○ | ○ | ○ | ○ | ○ |
| 93. Staff frustration is common here | ○ | ○ | ○ | ○ | ○ |
| 94. You need better access while at work to therapy resources on the Internet | ○ | ○ | ○ | ○ | ○ |
| 95. Management here has a clear plan for this program | ○ | ○ | ○ | ○ | ○ |
| 96. You often influence the decisions of other staff here | ○ | ○ | ○ | ○ | ○ |
| 97. You have easy access to specialized medical or psychiatric advice for clients when needed | ○ | ○ | ○ | ○ | ○ |
| 98. You have convenient access to e-mail at work | ○ | ○ | ○ | ○ | ○ |
| 99. You are encouraged here to try new and different techniques | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 100. You are able to adapt quickly when you have to shift focus | ○ | ○ | ○ | ○ | ○ |
| 101. Cognitive theory (RET, RBT, Gorski) guides much of your therapy here | ○ | ○ | ○ | ○ | ○ |
| 102. You are viewed as a leader by other staff here | ○ | ○ | ○ | ○ | ○ |
| 103. Computer equipment at this program is mostly old and outdated | ○ | ○ | ○ | ○ | ○ |
| 104. This program provides a comfortable reception/waiting area for clients | ○ | ○ | ○ | ○ | ○ |
| 105. Staff here feel comfortable using computers | ○ | ○ | ○ | ○ | ○ |
| 106. Frequent staff turnover is a problem for this program | ○ | ○ | ○ | ○ | ○ |
| 107. Therapists here are able to spend enough time with clients | ○ | ○ | ○ | ○ | ○ |
| 108. Support staff here have the skills they need to do their jobs | ○ | ○ | ○ | ○ | ○ |
| 109. Clinical staff here are well-trained | ○ | ○ | ○ | ○ | ○ |
| 110. The workload and pressures at your program keep motivation for new training low | ○ | ○ | ○ | ○ | ○ |
| 111. More computers are needed in this program for staff to use | ○ | ○ | ○ | ○ | ○ |
| 112. You were satisfied with the training opportunities available to you last year | ○ | ○ | ○ | ○ | ○ |
| 113. The instruction methods for learning new therapy strategies or materials that work best for you are: | | | | | |
| a. Lectures | ○ | ○ | ○ | ○ | ○ |
| b. Self-study | ○ | ○ | ○ | ○ | ○ |
| c. Workshops | ○ | ○ | ○ | ○ | ○ |
| d. Consultants | ○ | ○ | ○ | ○ | ○ |
| e. In-services | ○ | ○ | ○ | ○ | ○ |
| f. Supervision/feedback | ○ | ○ | ○ | ○ | ○ |

Available at: https://ibr.tcu.edu/forms/organizational-staff-assessments/

Texas Christian University Organizational Readiness for Change – Treatment Director Version

**This survey asks questions about how you see yourself as a manager, program director or therapy supervisor, and how you see your program. If you are a therapist practicing DBT, please click the <back> button ('<<') at the bottom of this page and ensure that you have selected the first option instead.**

**Please rate the items <u>according to the context that you are based in</u>. That is, where the terms 'program staff' and 'program' are used, please rate the DBT team/ program if your setting has one, or else rate the team of therapists/ general clinical program that you run. Where terms are used more broadly, e.g., 'staff', or 'here', you are invited to rate the general clinical program that the DBT practitioner may be based in (e.g., at a private clinic, a public hospital, an educational or rehabilitation institution, etc), if any.**

| **To complete the form, please mark your answers by filling in the appropriate circles. If you do not feel comfortable giving an answer to a particular statement, you may skip it and move on to the next statement. If an item does not apply to you or your workplace, leave it blank.** | **Disagree Strongly** | **Disagree** | **Uncertain** | **Agree** | **Agree Strongly** |
|---|---|---|---|---|---|
| **Your <u>program needs additional guidance</u> in –** | | | | | |
| 1. documenting service needs of clients for making treatment placements | ○ | ○ | ○ | ○ | ○ |
| 2. tracking and evaluating performance of clients over time | ○ | ○ | ○ | ○ | ○ |
| 3. obtaining information that can document program effectiveness | ○ | ○ | ○ | ○ | ○ |
| 4. automating client records for billing and financial applications | ○ | ○ | ○ | ○ | ○ |
| 5. evaluating staff performance and organizational functioning | ○ | ○ | ○ | ○ | ○ |
| 6. selecting new treatment interventions and strategies for which staff need training | ○ | ○ | ○ | ○ | ○ |
| 7. improving the recording and retrieval of financial information | ○ | ○ | ○ | ○ | ○ |
| 8. generating timely 'management' reports on clinical, financial, and outcome data | ○ | ○ | ○ | ○ | ○ |
| **Your clinical (treatment) <u>staff need more training</u> for –** | | | | | |
| 9. assessing client problems and needs | ○ | ○ | ○ | ○ | ○ |
| 10. increasing client participation in treatment | ○ | ○ | ○ | ○ | ○ |
| 11. monitoring client progress | ○ | ○ | ○ | ○ | ○ |
| 12. improving rapport with clients | ○ | ○ | ○ | ○ | ○ |
| 13. improving client thinking and problem solving skills | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 14. improving behavioral management of clients | ○ | ○ | ○ | ○ | ○ |
| 15. improving cognitive focus of clients during group therapy | ○ | ○ | ○ | ○ | ○ |
| 16. using computerized client assessments | ○ | ○ | ○ | ○ | ○ |
| **Current <u>pressures</u> to make program changes come from –** | | | | | |
| 17. clients in the program | ○ | ○ | ○ | ○ | ○ |
| 18. program staff members | ○ | ○ | ○ | ○ | ○ |
| 19. program supervisors or managers | ○ | ○ | ○ | ○ | ○ |
| 20. agency board members | ○ | ○ | ○ | ○ | ○ |
| 21. community action groups | ○ | ○ | ○ | ○ | ○ |
| 22. funding and oversight agencies | ○ | ○ | ○ | ○ | ○ |
| 23. accreditation or licensing authorities | ○ | ○ | ○ | ○ | ○ |
| **How strongly do you <u>agree</u> or <u>disagree</u> with each of the following statements?** | | | | | |
| 24. Your staff prefer training content that is based on scientific evidence | ○ | ○ | ○ | ○ | ○ |
| 25. Your offices and equipment are adequate | ○ | ○ | ○ | ○ | ○ |
| 26. You have the skills to conduct effective staff meetings | ○ | ○ | ○ | ○ | ○ |
| 27. Some staff get confused about the main goals for this program | ○ | ○ | ○ | ○ | ○ |
| 28. Staff here all get along very well | ○ | ○ | ○ | ○ | ○ |
| 29. Psychodynamic theory is commonly used in therapy here | ○ | ○ | ○ | ○ | ○ |
| 30. Your staff often have trouble implementing concepts they learn at conferences | ○ | ○ | ○ | ○ | ○ |
| 31. Program staff understand how this program fits as part of the treatment system in your community | ○ | ○ | ○ | ○ | ○ |
| 32. Treatment planning decisions for clients here often have to be revised by a therapist supervisor | ○ | ○ | ○ | ○ | ○ |
| 33. Staff training and continuing education are priorities at this program | ○ | ○ | ○ | ○ | ○ |
| 34. Offices here are adequate for conducting group therapy | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 35. You frequently discuss new therapy ideas with staff | ○ | ○ | ○ | ○ | ○ |
| 36. You were satisfied with outside training available to your staff last year | ○ | ○ | ○ | ○ | ○ |
| 37. You used the Internet to communicate with other treatment professionals (e.g., list serves, bulletin boards, chat rooms) in the past month | ○ | ○ | ○ | ○ | ○ |
| 38. You fully trust the professional judgment of staff who work with clients here | ○ | ○ | ○ | ○ | ○ |
| 39. Pharmacotherapy and medications are important parts of this program | ○ | ○ | ○ | ○ | ○ |
| 40. There is too much friction among staff members | ○ | ○ | ○ | ○ | ○ |
| 41. Some staff members here resist any type of change | ○ | ○ | ○ | ○ | ○ |
| 42. You always listen to ideas and suggestions from staff | ○ | ○ | ○ | ○ | ○ |
| 43. Staff generally regard you as a valuable source of information | ○ | ○ | ○ | ○ | ○ |
| 44. You have easy access for using the Internet at work | ○ | ○ | ○ | ○ | ○ |
| 45. The staff here always works together as a team | ○ | ○ | ○ | ○ | ○ |
| 46. Client assessments here are usually conducted using a computer | ○ | ○ | ○ | ○ | ○ |
| 47. Your duties are clearly related to the goals of this program | ○ | ○ | ○ | ○ | ○ |
| 48. You learned new management skills or techniques at a professional conference in the past year | ○ | ○ | ○ | ○ | ○ |
| 49. You consistently plan ahead and carry out your plans | ○ | ○ | ○ | ○ | ○ |
| 50. You are under too many pressures to do your job effectively | ○ | ○ | ○ | ○ | ○ |
| 51. Therapists here are given broad authority in treating their own clients | ○ | ○ | ○ | ○ | ○ |
| 52. This program encourages and supports professional growth | ○ | ○ | ○ | ○ | ○ |
| 53. Behavior modification (contingency management) is used with many clients here | ○ | ○ | ○ | ○ | ○ |
| 54. You read about new techniques and treatment information each month | ○ | ○ | ○ | ○ | ○ |
| 55. Staff here are always quick to help one another when needed | ○ | ○ | ○ | ○ | ○ |
| 56. Computer problems are usually repaired promptly at this program | ○ | ○ | ○ | ○ | ○ |
| 57. Novel treatment ideas by staff are discouraged | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 58. There are enough therapists here to meet current client needs | ○ | ○ | ○ | ○ | ○ |
| 59. The budget here allows staff to attend professional conferences each year | ○ | ○ | ○ | ○ | ○ |
| 60. You have enough opportunities to keep your management skills up-to-date | ○ | ○ | ○ | ○ | ○ |
| 61. Mutual trust and cooperation among staff in this program are strong | ○ | ○ | ○ | ○ | ○ |
| 62. Most client records here are computerized | ○ | ○ | ○ | ○ | ○ |
| 63. You are willing to try new ideas even if some staff members are reluctant | ○ | ○ | ○ | ○ | ○ |
| 64. Learning and using new procedures are easy for you | ○ | ○ | ○ | ○ | ○ |
| 65. This program operates with clear goals and objectives | ○ | ○ | ○ | ○ | ○ |
| 66. Staff members often show signs of stress and strain | ○ | ○ | ○ | ○ | ○ |
| 67. You have staff meetings weekly | ○ | ○ | ○ | ○ | ○ |
| 68. You usually accomplish whatever you set your mind on | ○ | ○ | ○ | ○ | ○ |
| 69. You can change procedures here quickly to meet new conditions | ○ | ○ | ○ | ○ | ○ |
| 70. Therapists here often try out different techniques to improve their effectiveness | ○ | ○ | ○ | ○ | ○ |
| 71. You used the Internet to access drug treatment information in the past month | ○ | ○ | ○ | ○ | ○ |
| 72. The formal and informal communication channels here work very well | ○ | ○ | ○ | ○ | ○ |
| 73. You have program policies that limit staff access to the Internet and use of e-mail | ○ | ○ | ○ | ○ | ○ |
| 74. Offices here allow the privacy needed for individual therapy | ○ | ○ | ○ | ○ | ○ |
| 75. You are sometimes too cautious or slow to make changes | ○ | ○ | ○ | ○ | ○ |
| 76. Staff members think they have too many rules here | ○ | ○ | ○ | ○ | ○ |
| 77. You feel a lot of stress here | ○ | ○ | ○ | ○ | ○ |
| 78. Manualized or structured treatments (e.g., 12-step theory, as with AA/NA) are followed by many of the therapists here | ○ | ○ | ○ | ○ | ○ |
| 79. Program staff are always kept well informed | ○ | ○ | ○ | ○ | ○ |
| 80. The heavy workload here reduces program effectiveness | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 81. You regularly read professional journal articles or books on therapy | ○ | ○ | ○ | ○ | ○ |
| 82. Communications with other programs that have similar interests would help | ○ | ○ | ○ | ○ | ○ |
| 83. Staff readily implement your ideas for changing program procedures | ○ | ○ | ○ | ○ | ○ |
| 84. More open discussions about program issues are needed here | ○ | ○ | ○ | ○ | ○ |
| 85. This program holds regular in-service training | ○ | ○ | ○ | ○ | ○ |
| 86. You learned new management skills or techniques from manuals or other self-education materials in the past year | ○ | ○ | ○ | ○ | ○ |
| 87. You frequently hear good staff ideas for improving treatment | ○ | ○ | ○ | ○ | ○ |
| 88. Staff seek your opinions about therapy and treatment issues | ○ | ○ | ○ | ○ | ○ |
| 89. You are effective and confident in doing your job | ○ | ○ | ○ | ○ | ○ |
| 90. You have a computer to use in your personal office space at work | ○ | ○ | ○ | ○ | ○ |
| 91. Some staff here do not do their fair share of work | ○ | ○ | ○ | ○ | ○ |
| 92. A larger support staff is needed to help meet program needs | ○ | ○ | ○ | ○ | ○ |
| 93. The general attitude here is to use new and changing technology | ○ | ○ | ○ | ○ | ○ |
| 94. You do a good job of regularly updating and improving your skills | ○ | ○ | ○ | ○ | ○ |
| 95. Staff members always feel free to ask questions and express concerns in this program | ○ | ○ | ○ | ○ | ○ |
| 96. You are highly effective in working with community leader and board members | ○ | ○ | ○ | ○ | ○ |
| 97. Staff frustrations are common here | ○ | ○ | ○ | ○ | ○ |
| 98. Direct access to therapy resources on the Internet is needed by staff here | ○ | ○ | ○ | ○ | ○ |
| 99. You have a clear plan for leading this program | ○ | ○ | ○ | ○ | ○ |
| 100. Your staff readily follows your leadership | ○ | ○ | ○ | ○ | ○ |
| 101. You have easy access to specialized medical or psychiatric advice for clients when needed | ○ | ○ | ○ | ○ | ○ |
| 102. You have convenient access to e-mail at work | ○ | ○ | ○ | ○ | ○ |
| 103. You encourage therapists to try new and different techniques | ○ | ○ | ○ | ○ | ○ |

| | Disagree Strongly | Disagree | Uncertain | Agree | Agree Strongly |
|---|---|---|---|---|---|
| 104. You are able to adapt quickly when you have to shift focus | ○ | ○ | ○ | ○ | ○ |
| 105. Cognitive theory (RET, RBT, Gorski) guides much of the therapy here | ○ | ○ | ○ | ○ | ○ |
| 106. You are viewed as a strong leader by the staff here | ○ | ○ | ○ | ○ | ○ |
| 107. Computer equipment at this program is mostly old and outdated | ○ | ○ | ○ | ○ | ○ |
| 108. This program provides a comfortable reception/waiting area for clients | ○ | ○ | ○ | ○ | ○ |
| 109. Staff here feel comfortable using computers | ○ | ○ | ○ | ○ | ○ |
| 110. Frequent staff turnover is a problem for this program | ○ | ○ | ○ | ○ | ○ |
| 111. Therapists here are able to spend enough time with clients | ○ | ○ | ○ | ○ | ○ |
| 112. Support staff here have the skills they need to do their jobs | ○ | ○ | ○ | ○ | ○ |
| 113. Clinical staff here are well-trained | ○ | ○ | ○ | ○ | ○ |
| 114. The workload and pressures at your program keep motivation for new training low | ○ | ○ | ○ | ○ | ○ |
| 115. More computers are needed in this program for staff to use | ○ | ○ | ○ | ○ | ○ |

Available at: https://ibr.tcu.edu/forms/organizational-staff-assessments/

Evidence-based Practice Attitude Scale-3

**The following questions ask about your feelings about using new types of therapy, interventions, or treatments. Manualized therapy refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/ predetermined way. You are invited to rate the following items with respect to the use of Dialectical Behaviour Therapy.**

| **Please indicate the extent to which you agree with each item using the provided scale.** | **Not at all** | **Slight extent** | **Moderate extent** | **Great extent** | **Very great extent** |
|---|---|---|---|---|---|
| ***Circle the number indicating the extent to which you agree with each item using the following scale:*** | | | | | |
| 1. I like to use new types of therapy/interventions to help my clients | 0 | 1 | 2 | 3 | 4 |
| 2. I am willing to try new types of therapy/interventions even if I have to follow a treatment manual | 0 | 1 | 2 | 3 | 4 |
| 3. I am willing to use new and different types of therapy/interventions developed by researchers | 0 | 1 | 2 | 3 | 4 |
| 4. Research based treatments/interventions are not clinically useful | 0 | 1 | 2 | 3 | 4 |
| 5. Clinical experience is more important than using manualized therapy/treatment | 0 | 1 | 2 | 3 | 4 |
| 6. I would not use manualized therapy/interventions | 0 | 1 | 2 | 3 | 4 |
| ***If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:*** | | | | | |
| 7. it 'made sense' to you? | 0 | 1 | 2 | 3 | 4 |
| 8. it was required by your supervisor? | 0 | 1 | 2 | 3 | 4 |
| 9. it was required by your agency? | 0 | 1 | 2 | 3 | 4 |
| 10. it was required by your state? | 0 | 1 | 2 | 3 | 4 |
| 11. it was being used by colleagues who were happy with it? | 0 | 1 | 2 | 3 | 4 |
| 12. you felt you had enough training to use it correctly? | 0 | 1 | 2 | 3 | 4 |
| 13. you knew it was right for your clients | 0 | 1 | 2 | 3 | 4 |
| 14. you had a say in how you would use the evidence-based practice | 0 | 1 | 2 | 3 | 4 |
| 15. it fit with your clinical approach | 0 | 1 | 2 | 3 | 4 |

| ***Circle the number indicating the extent to which you agree with each item using the following scale:*** | **Not at all** | **Slight extent** | **Moderate extent** | **Great extent** | **Very great extent** |
|---|---|---|---|---|---|
| 16. Evidence-based practice is not useful for clients with multiple problems | 0 | 1 | 2 | 3 | 4 |
| 17. Evidence-based practice is not individualized treatment | 0 | 1 | 2 | 3 | 4 |
| 18. Evidence-based practice is too narrowly focused | 0 | 1 | 2 | 3 | 4 |
| 19. I prefer to work on my own without oversight | 0 | 1 | 2 | 3 | 4 |
| 20. I do not want anyone looking over my shoulder while I provide services | 0 | 1 | 2 | 3 | 4 |
| 21. My work does not need to be monitored | 0 | 1 | 2 | 3 | 4 |
| 22. A positive outcome in therapy is an art more than a science | 0 | 1 | 2 | 3 | 4 |
| 23. Therapy is both an art and a science | 0 | 1 | 2 | 3 | 4 |
| 24. My overall competence as a therapist is more important than a particular approach | 0 | 1 | 2 | 3 | 4 |
| 25. I don't have time to learn anything new | 0 | 1 | 2 | 3 | 4 |
| 26. I can't meet my other obligations | 0 | 1 | 2 | 3 | 4 |
| 27. I don't know how to fit evidence-based practice into my administrative work | 0 | 1 | 2 | 3 | 4 |
| 28. Learning an evidence-based practice will help me keep my job | 0 | 1 | 2 | 3 | 4 |
| 29. Learning an evidence-based practice will help me get a new job | 0 | 1 | 2 | 3 | 4 |
| 30. Learning an evidence-based practice will make it easier to find work | 0 | 1 | 2 | 3 | 4 |
| 31. I would learn an evidence-based practice if continuing education credits were provided | 0 | 1 | 2 | 3 | 4 |
| 32. I would learn an evidence-based practice if training were provided | 0 | 1 | 2 | 3 | 4 |
| 33. I would learn an evidence-based practice if ongoing support was provided | 0 | 1 | 2 | 3 | 4 |
| 34. I enjoy getting feedback on my job performance | 0 | 1 | 2 | 3 | 4 |
| 35. Getting feedback helps me to be a better therapist/case manager | 0 | 1 | 2 | 3 | 4 |
| 36. Getting supervision helps me to be a better therapist/case manager | 0 | 1 | 2 | 3 | 4 |

Available at: https://doi.org/10.1186/s13012-017-0573-0

## Appendix N

## Additional Information on the TCU ORC Orientation Subscale

**Table N1**

*Descriptive Information for Orientation Subscale (Not Computed) on the TCU ORC*

| TCU ORC Item | | TCU ORC-S (*n* = 16) | | TCU ORC-D (*n* = 5) | | Total (*N* = 21) | |
|---|---|---|---|---|---|---|---|
| | | **Mean** | ***SD*** | **Mean** | ***SD*** | **Mean** | ***SD*** |
| 29. | Psychodynamic theory is commonly used in your therapy here | 2.36 | 1.21 | 2.2 | 0.45 | 2.33 | 1.02 |
| 39. | Pharmacotherapy and medications are important parts of this program | 3.36 | 1.03 | 3.00 | 1.00 | 3.19 | 0.98 |
| 53. | behaviour modification (contingency management) is used with many of your clients here | 3.73 | 0.90 | 3.40 | 1.34 | 3.71 | 0.96 |
| 78. | 12-step theory (AA/NA) is followed by many of the therapists here | 2.82 | 0.75 | 3.60 | 0.89 | 2.86 | 0.96 |
| 105. | Cognitive theory (RET, RBT, Gorski) guides much of your therapy here | 3.36 | 1.12 | 3.20 | 1.10 | 3.24 | 1.09 |

**Figure N1**

*Responses to TCU ORC Item 29) Psychodynamic theory is commonly used in your therapy here:*

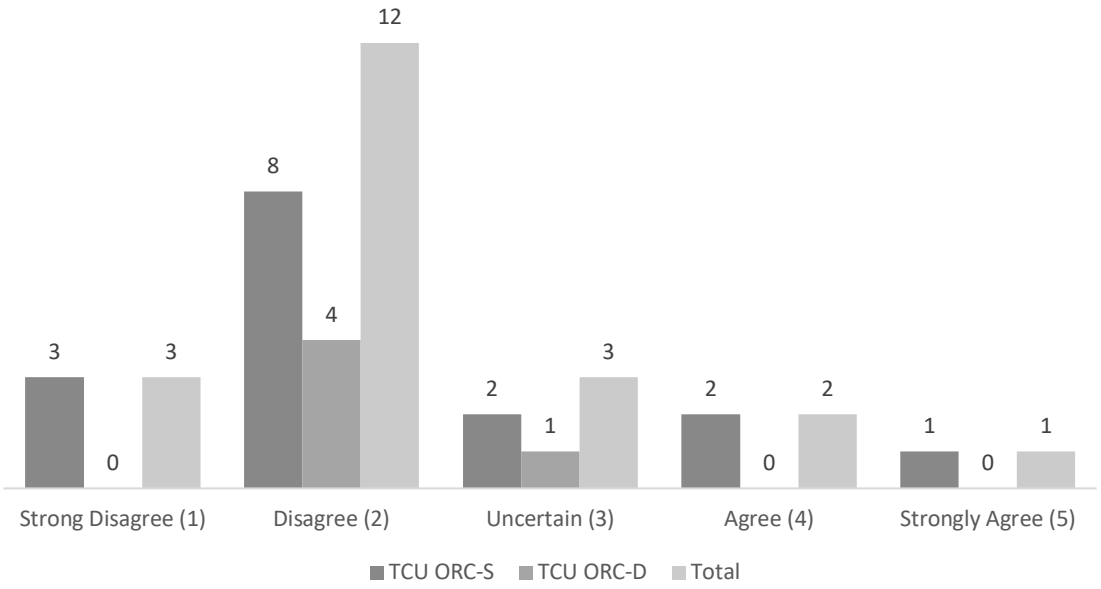


**Figure N2**

*Responses to TCU ORC Item 39) Pharmacotherapy and medications are important parts of this program:*

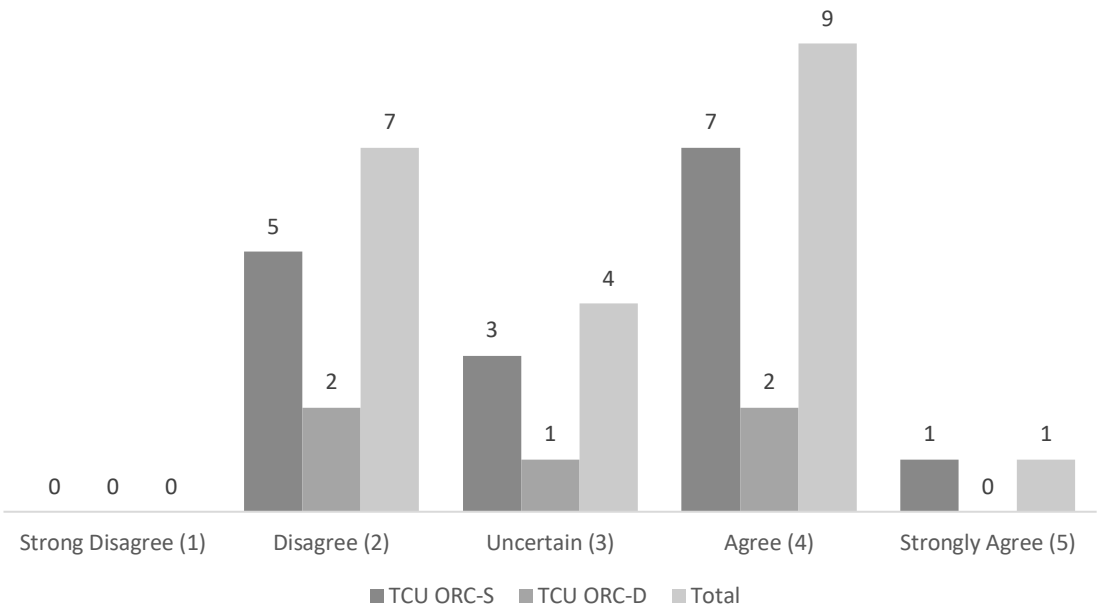



**Figure N3**

*Responses to TCU ORC Item 53) Behaviour modification (contingency management) is used with many of your clients here:*

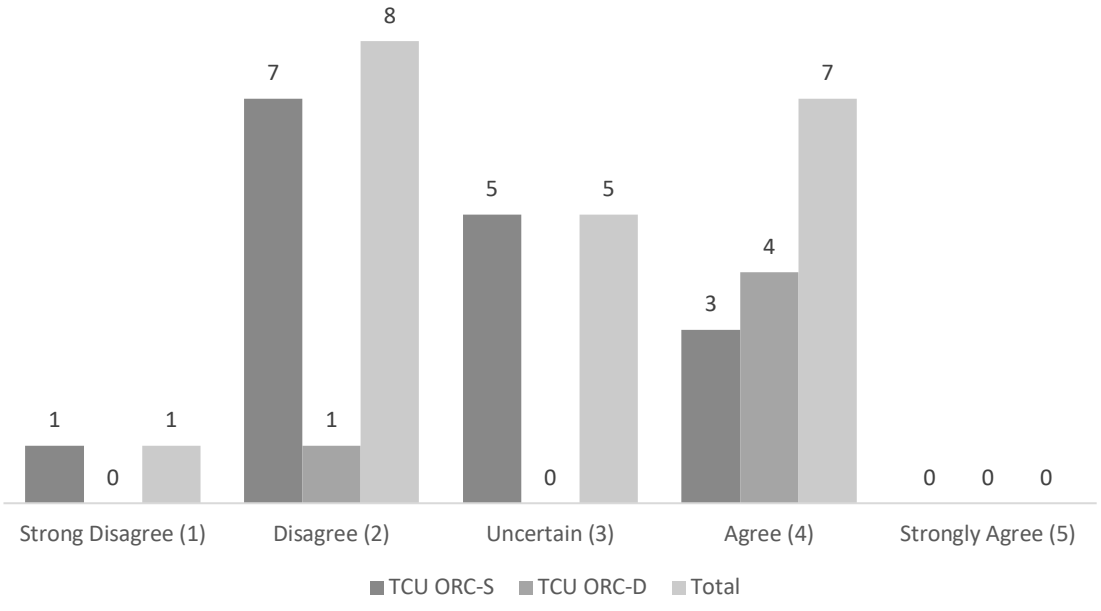


**Figure N4**

*Responses to TCU ORC Item 78) 12-step theory (AA/NA) is followed by many of the therapists here:*

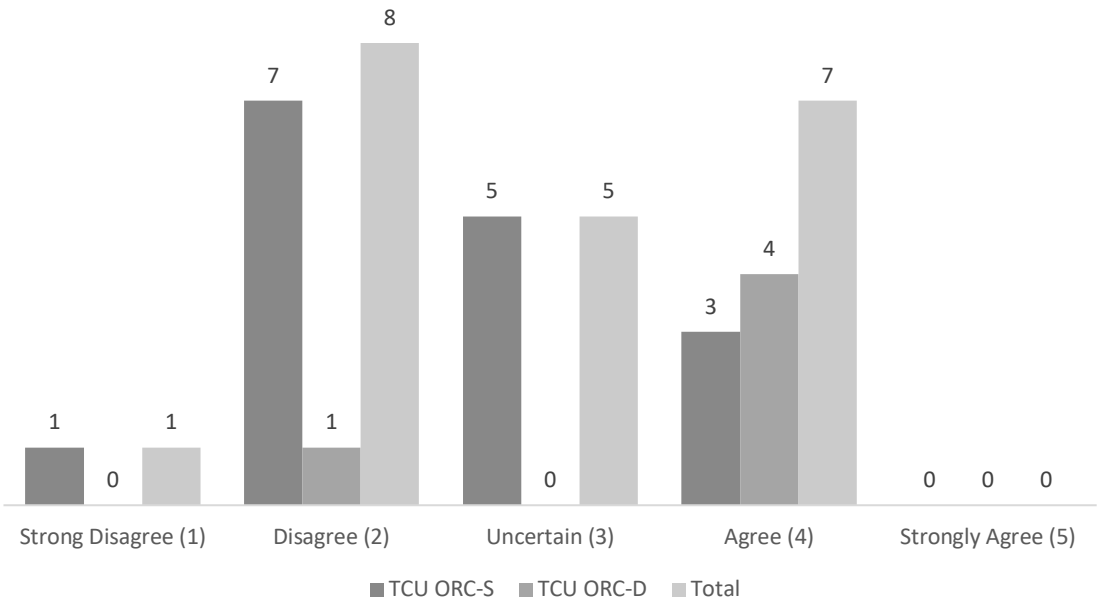
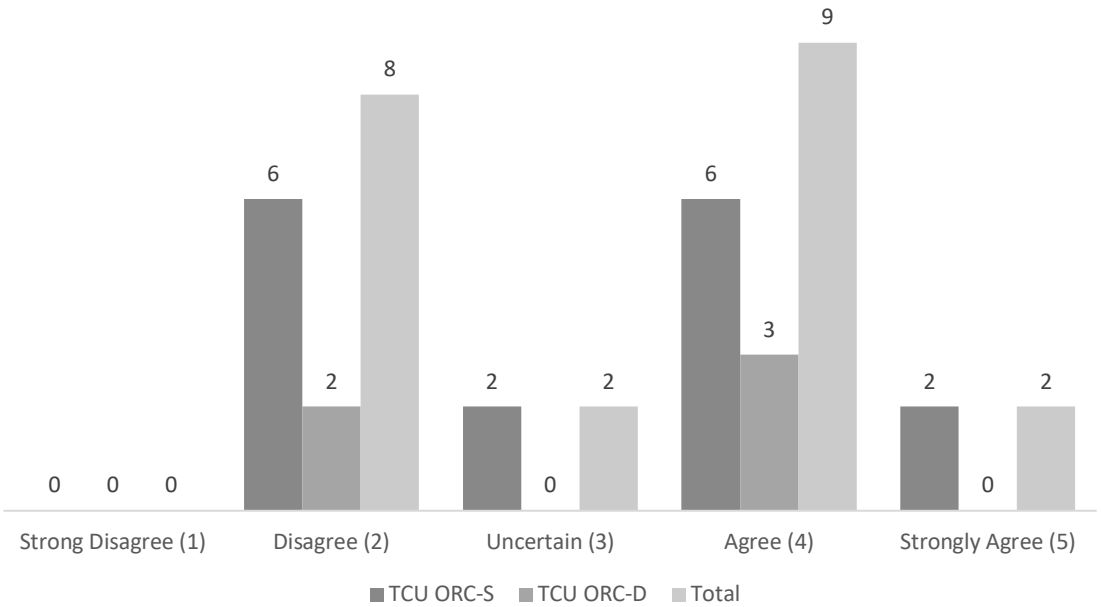



**Figure N5**

*Responses to TCU ORC Item 105) Cognitive theory (RET, RBT, Gorski) guides much of your therapy here:*



## Appendix O

## Interview Schedule for Study 3

**Preparation Before Interview**

Refer to the demographic questionnaire that this individual had previously completed, to get a sense of the training background and level of involvement in DBT. Use this information, together with responses to Question 1, to structure your interview according to the stage of implementation that the stakeholder is in. In addition to distinguishing between implementers and non-implementers, this schedule will contain prompts and/or notes for clinicians (these refer to DBT and non-DBT therapists, referrers, etc) and administrators (managers, support staff, etc). For conciseness, not all prompts need to be provided if the interviewee has already shared their answers to these in their response.

**Introduction/Background**

Thank you for agreeing to this interview. As you know, we are seeking to understand how Dialectical Behaviour Therapy can be best developed and delivered in a Singaporean context. So we'd like to start with a few questions to get a sense of how you may have already been involved with DBT, or even considered practicing it.

1a. Could you share – to the degree that you are comfortable with – about the clinical setting that you are currently based in? (If the interviewee appears hesitant, say: 'We understand if our interviewees prefer to keep this information private, as it might make someone more identifiable even though this data will be de-identified.')

Prompts:

- Is it a public or private-based setting?
- What is the target client population that you are serving? Can you describe the needs of this population?
- How long have you worked here?
- How often/ in what capacity do you interact with other disciplines/professions e.g., psychologists, psychiatrists, social workers, counsellors, case managers?

1b. Have you tried or are you trying to implement DBT in your clinical setting or previous settings? (*Note: Clarify if the interviewee is referring to a current or past clinical setting, if needed/ unclear.)*

Prompts:

- If yes, to what extent? For example, have you adopted or adapted the therapy? (*Note: Give examples – treatment modes, or any interventions/specific skills, as needed.*)
  - How many clients have you done this with?
- If no, have you thought about trying? Do you have an example of what you have considered trying out?
  - If you have not thought about implementing DBT, why not?
  - Do you know of other colleagues who have made efforts to implement this?

1c. How much does DBT fit with your own treatment philosophy or clinical approach?

Prompts:

- When and how did you first learn about DBT?
- Which DBT trainings (courses, workshops) have you attended in the past? (can also ask under Qn 10a)
- Prompts For Clinicians: Would you consider yourself a DBT therapist? Which parts of it fit with your style? *(Note: Interviewee might clarify to say that they are delivering DBT-based interventions.)* If not, how would you describe your clinical style instead?

1d. Have any of your clients walked in and requested for DBT and how did you respond? Would DBT be right for your clients?

**Value of Implementing DBT**

***For Interviewees who have Implemented DBT (Past and/or Current)***

2a. You've implemented DBT, what gave you the idea to do this and why?
- Additional Prompt for Interviewees who are part of a DBT Program: What do you understand about the original mission and goals of your program?

2b. When you thought of implementing this therapy, what were benefits you hoped for at the start? *(If participant speaks about costs of doing so, let them know that the interview will explore these later)*

Prompts:
- For Clinicians: To your clients, to yourself and your clinical team, to your organization/agency?
- For Administrators: To your service users, to your staff team, to your organization/agency?

2c. Which of the four DBT modes did you think would add to most value to your clients? How so?
- *Note For Administrators: Check if they are familiar with the four modes of individual therapy, group skills training, phone coaching and consultation team.*
- Do you see benefits to [other modes not mentioned]?

2d. How important is being part of a DBT team to your work?
- Prompts For Clinicians: How did you find being part of a DBT team? How supportive was it? Do you find any challenges being in it?
  - With our culture in Singapore, how do you think Singaporean therapists would find it, being part of a team like this? Do you see any cultural factors/culture-related concerns there?
  - When you have been vulnerable and open in a team, what happened?
- Prompt for Administrators: What have your staff members shared about their team experience?
- *Note For Administrators: May need to explain what a DBT consultation team is i.e., the objective is to maintain therapists' motivation and enhance their skill when seeing clients with challenging behaviours; therapy for therapists where each member brings their needs to team meetings (not the clients' needs), only members who are currently treating clients using DBT can be part of a team.*

2e. Did you try using DBT with clients with BPD? How about with other types of clinical conditions?

2f. What did you experience during implementation?

Prompts:
- What benefits did you actually find after starting DBT implementation?
- How did clients respond?
- What obstacles did you run into? What other stressors did you face?
- So far, how do you find DBT fits with Singaporean culture; how do Singaporean patients respond to the interventions? Do certain skills modules seem more relevant or less relevant to Singaporeans? (*For people more trained in DBT:* What about validation and change strategies?)

***For Interviewees who have <u>not</u> Implemented DBT***

2b. Do you see any benefit to implementing this therapy?
- If Yes, what are some of the benefits that come to your mind?
- If No, what makes you think that?

2c. Are you familiar with the four DBT modes? Have you thought about which might add value to your clients? How so? *(Note: Briefly share an overview of the treatment modes, if needed.)*

2a. What would you personally need to consider implementing DBT?

**<u>Barriers to DBT Implementation</u>**

3. In your service/agency, how do staff teams typically introduce new treatments, programs or services? How does organizational culture play a role in this?
   Prompts:
   - Who would you need to lead the team? (e.g., in hospitals, does it need to be a psychiatrist?)

4. How much autonomy or broad authority are you given in treating your own clients? Does this affect whether you would use DBT interventions with them?
   Prompts:
   - What about in setting up a group?

5. Part One of our study, which was a survey, found that participants who are currently implementing a DBT program held a more negative perception of organizational culture, including leadership culture, and formal leadership behaviour. At the same time, those who are practicing DBT individually (not part of any DBT team) rated the leadership culture and leadership behaviour in their work context more highly. *(If clarification is needed, say: 'Leader culture relates to the perception of senior leadership/clinical management in the organization. For example, perceptions that management rewards creative ways to improve client care, that the opinions of clinical staff are solicited, or that improvements in client education and client participation are supported. Leadership behaviour includes things like role clarity, appropriateness and transparency of decision-making processes, approaches to leadership e.g., empowering versus didactic, transformational versus a traditional command-and-control.')* How does this finding fit or not fit with your own experience?
   Prompts:
   - *For people intending to/ already implementing DBT:* How could you use this information, after learning that teams who have done DBT implementation are facing this?
   - In what way is feeling supported by management (middle, upper), supervisors or leaders important to the success of implementing this therapy, in your experience? ***For implementers:*** Do you find you have sufficient support?
   - Could you describe any workplace cultural barriers that you faced? (E.g., comments from colleagues?)
   - How about leadership barriers? Any barriers from management?

6. The survey found that the more involved someone is in doing DBT (*if elaboration is needed, say: 'in terms of activities like being part of a team or program, consulting a DBT expert, providing consultation*'), the more they found that evaluation methods were lacking. For example, getting feedback on individual-, team-, and systems-level, or using multiple sources of information on performance, etc. Participants who started implementing DBT programs generally found this to be a weaker area in their organization/agency. Have you thought about evaluation?

Prompts:

- How did you measure outcomes for your work in DBT? How is this similar or different to how you measured outcomes for other therapies, if you practice them?
- How, if at all, do you evaluate the quality of the DBT-services that you deliver?
- How do you personally use data to inform DBT implementation or practice development?
- How does your organization use such data? How does that help or hinder your implementation in any way?

7. As a group, both clinicians and administrators in our sample felt that current pressures to make program changes come most highly from internal factors, rather than external factors. What this means is that for clinicians, pressures for change came from themselves as staff members, followed by program supervisors or managers, then clients in the program. For administrators, highest pressures for change also came from themselves, followed by program staff members, but they did not attribute this as much to clients in the program. The least pressure for change comes from accreditation or licensing authorities.
    a. As we know, there is no regulation for therapists practicing in Singapore. In your opinion, how does that affect the take-up rate by clinicians for a therapy such as DBT?
    b. Learning DBT also seems more helpful to some professions (e.g., psychologists) but not others (e.g., psychiatrists) to keep their jobs or to find work. In your view, how does that impact on DBT implementation here in your service? In Singapore?

8a. Based on your observations, are there any differences in the individual characteristics of your colleagues (past and present) who choose to adopt DBT and those who are inclined towards other types of therapies?

8b. It appeared that while many respondents in our survey found that DBT was right for their clients, it did not fit with their clinical approach. In what ways can you relate to this finding?

9. How has your view of DBT have changed over the years, e.g., as you gained more experience at work or progressed through various stages of your career? (or even gained more training)
*(Note: If a participant is at a relatively earlier stage of career development, ask instead: 'How do you foresee your view of DBT might change over time, as you gain more experience at work?')*

10. We know that DBT is a resource-intensive treatment. The resources available to deliver DBT in Singapore can be variable depending on the specific care setting. We'd like to ask more about facilitators for implementation with regards to administrative supports.
    a. How does the limited availability of local DBT training affect your implementation decisions? If you received more training, how would that affect your decision to use DBT?
    Prompts:
        - Any reason that you pursued/ did not pursue training in DBT?
        - ***For people who are not trained in DBT:*** Would you feel confident to use it if you never attended formal training, but just read Marsha Linehan's manual? *OR* ***For people who are trained in DBT:*** Right now, anyone can pick up a manual, like a Linehan manual, and then say 'I'm doing DBT'. What are your thoughts about that?
    b. What about access to regular supervision or consultation for DBT clinicians to improve their delivery of the treatment?
        - ***For non-implementers:*** How did that affect your decision on whether to provide this therapy?
        ***For implementers:*** Does that affect the way you use this treatment, you feel?
    c. What are the differences in the feasibility of delivering DBT in a public healthcare versus private setting?

d. In your experience, did yourself/anyone you know take the role of an opinion leader in DBT implementation? What do opinion leaders need most support in when it comes to doing DBT/ getting it off the ground?

11. The survey results showed that managers with more DBT-specific experience find that there are higher resources to support practice changes in general and clinicians believed resources were lower.
    a. In your experience, how has this played out for you?
    b. What are some differences in expectations between these two groups of stakeholders (that is, clinicians and administrators)? E.g., in treatment outcomes based on available resources, ease of implementation using given resources, etc.
    c. How has that helped or affected your implementation of a therapy like DBT?

12. In what ways has your organizational climate been conducive for implementing something like DBT?

    Prompts:
    - How are novel treatment ideas encouraged or discouraged?
    - What have you encountered when attempting to change procedures to facilitate DBT delivery?

***For Interviewees who have Implemented DBT (Past and/or Current)***

13. How much opportunity in the day-to-day work do you have to keep your original motivation for doing DBT in mind? For example, thinking about the original mission and goals?

    Prompts:
    - Does the pace of your work allow for this type of thinking/ reflection?
    - Now you've been implementing DBT for a while, how close is it to your original mission or intention when you set up this program?

***For Interviewees who have <u>not</u> Implemented DBT***

**13.** How would DBT fit or not fit with your treatment setting's mission and goals?

# Appendix P

## Table P1

*Excerpt from the Initial Matrix*

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| Interviewee 1 | Currently delivering individual DBT and has delivered an outpatient DBT skills group in the past<br><br>Joined an existing DBT team that is running an adapted DBT program<br><br>Currently in a DBT consultation team and attending DBT consultation with an overseas expert | Identifies with an integrative therapy style<br><br>Consciously trying to practice more DBT, having been intensively trained in DBT and being provided with opportunities to do DBT | Therapist would attempt to explore a patient's understanding for DBT if they requested the treatment from the outset<br><br>Found that patients frequently learnt about DBT from a psychiatrist and at times via personal research<br><br>Patients' active role in change<br><br>Therapist finds it difficult to use DBT with patients who are ambivalent<br><br>Questioning the relevance of DBT for the target client population<br><br>Clients are referred out for mental health treatment as current setting offers a niche treatment where offence-specific behaviours are targeted |
| Interviewee 2 | Has used Wise Mind by integrating it into TF-CBT treatment for one client<br><br>Has integrated DBT-interventions into TF-CBT for 2 cases<br><br>Has used Wise Mind with female and male youths<br><br>Opinion that some of the DBT skills are general coping skills that are also available in other manualized treatments and covered in the existing group treatment program that the current workplace has adopted for treating sexual offending<br><br>Runs a CBT-based manualized group treatment that is also module-based and contains mindfulness<br><br>Does not use DBT interventions often<br><br>Has incorporate a distress tolerance skill with an adult client in a group program who presented with mood difficulties and self-harm | May not know DBT in-depth enough to decide if it fits well with own treatment philosophy or clinical approach<br><br>Current area of practice is niche and thus refers clients out for treatment of mental health<br><br>Experienced a heavy emphasis on CBT early in career and first learn about DBT during postgraduate training but has had limited opportunities to use it<br><br>First learnt about DBT during postgraduate training<br><br>Did not pursue further DBT training because of questions about how much DBT could be incorporated into existing treatment programs and because of limited spaces for DBT training, which meant that other staff members who worked with suicidality and BPD were prioritized for it<br><br>Finds DBT concepts helpful and would consider learning more in the future or when no longer working with current client population | Has not encountered clients in current forensic setting requesting for DBT<br><br>Mainly works with juvenile offenders and therefore does not see many clients with BPD or who would meet the age-based criteria for a diagnosis of personality disorder<br><br>Sees the value of distress tolerance skills and Wise Mind in enhancing clients' self-awareness especially for those with lability in mood<br><br>Sees value of DBT for clients who need help with emotion regulation although they may not have a diagnosis of BPD or present with suicidality<br><br>Questioning the relevance of DBT for the target client population<br><br>Clients are referred out for mental health treatment as current setting offers a niche treatment where offence-specific behaviours are targeted |

***(continued on p.337)***

**Table P1 (Continued)**

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| | Does not do much DBT apart from including specific interventions such as distress tolerance skills or Wise Mind for clients with mood-related concerns because of high adherence to ongoing program evaluation of an treatment program manual<br><br>Cannot deviate from existing program manual although may introduce brief DBT-interventions such as Wise Mind depending on the needs of the group<br><br>Unable to use DBT-interventions in-depth during group therapies as it may only be relevant to a particular individual and not to all group members<br><br>Colleagues considered pursuing DBT certification as it has relevance to the target client population, but were unsure about follow-up due to the need for further research on the effectiveness of DBT for sexual offending<br>Interventions from other therapies like DBT are only incorporated if clients present with mental health concerns because current treatment programs are offence-specific<br><br>Workplace has adopted an overseas program and created another based on extensive literature reviews<br><br>Colleagues did not implement DBT because everyone delivers the manualized group treatment targeted at sexual offending behaviour<br><br>Finds DBT concepts helpful and would consider learning more in the future or when no longer working with current client population | | |
| Interviewee 3 | Used more DBT in the past although this mainly involved DBT skills<br><br>Used some distress tolerance and/or emotional regulation skills in the past and currently uses handouts and worksheets for Understanding and Naming Emotions<br><br>Mainly uses DBT skills in individual therapy due to a clear psychodynamic orientation when running group therapies<br><br>Has used DBT in individual therapy for 5 years | Does not have in-depth knowledge about DBT<br><br>Ex-clinical supervisor emphasized on standard DBT or a pure approach<br><br>Clarity about psychodynamic therapy orientation for specific patients in a specialized service and thus would not use DBT-interventions for such cases<br><br>Exposure to the DBT handouts for Understanding and Naming Emotions during postgraduate training and continued to use these for the purposes of providing psychoeducation on emotions | Patients have requested for CBT but not DBT before<br><br>Patients have not requested for DBT but community agencies have requested for training in it<br><br>Unable to provide DBT training to community partners who work with personality disorders as the hospital staff is not trained in it |

*(continued on p.338)*

**Table P1 (Continued)**

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| | Practices mainly with psychodynamic therapy and schema therapy but finds the DBT worksheets for Understanding and Naming Emotions to be a useful adjunctive intervention for patients with personality disordered traits where emotion-based work is required<br><br>Has provided the worksheets for Understanding and Naming Emotions to more than 100 clients<br><br>Teaches clients about functions of emotions because they can be emotion-phobic and finds that these interventions are a very small part of DBT and not exclusive to DBT<br><br>No longer uses distress tolerance skills in client work but did so in earlier years of work and career<br><br>Does not draw from the other DBT skills modules like mindfulness and interpersonal effectiveness<br><br>Does not want to misuse DBT without being trained in it and therefore does not feel comfortable using more than small components of it that fit into another/main therapy<br><br>Learnt DBT during clinical placements in the past because of supervision by a DBT practitioner and advocate but found it complicated<br><br>Did not pursue further training in DBT<br><br>Ex-clinical supervisor emphasized on standard DBT or a pure approach<br><br>Exposure to the DBT handouts for Understanding and Naming Emotions during postgraduate training and continued to use these for the purposes of providing psychoeducation on emotions<br><br>DBT feels foreign because of attending a once-off workshop in DBT groups many years ago and not having opportunities to implement DBT in previous and current workplaces<br><br>Departmental decision to not do DBT after getting staff members trained in various therapies<br>Staff team/department did not have the requisite clinical training at the time to incorporate DBT in their treatment programs | Ex-clinical supervisor introduced DBT for a client with BPD and made a distinction between individual DBT therapy and DBT skills training<br>Found that a DBT skills group would have made the role of an individual therapist easier<br><br>Felt untrained in DBT<br><br>May not know DBT in-depth enough to decide if it fits well with own treatment philosophy or clinical approach<br><br>Dislikes mindfulness | |

*(continued on p.339)*

**Table P1 (Continued)**

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| | Clarity about psychodynamic therapy orientation for specific patients in a specialized service and thus would not use DBT-interventions for such cases<br><br>Uses DBT skills for clients seen in a general psychiatric clinic where more directiveness or structure is needed to move the treatment along, however the therapist's preference is usually to do more exploratory work and elicit answers from patients rather than teach skills | | |
| Interviewee 4 | Not presently thinking of setting up a formal DBT program due to insufficient numbers of relevant cases to form a DBT group, and so draws on DBT skills when providing peer supervision or working with clients who present with intense emotion dysregulation<br><br>Still new to current workplace and consideration the possibilities regarding development of DBT-based group therapies<br><br>Enthusiasm for introducing DBT<br><br>Has not yet used DBT with many clients in current clinical setting because they do not present with intense emotion dysregulation, but has used DBT with a majority of clients in the previous work setting<br><br>Used DBT with 20 to 25 youth clients in previous clinical setting<br><br>Teaches interpersonal effectiveness skills least to clients, out of the 4 DBT skills modules, except for clients with personality-disordered traits<br><br>'Use of emotion regulation and distress tolerance skills for clients who present with regulation difficulties and self-harm<br><br>Relevance of interpersonal effectiveness skills with clients presenting with social deficits and social anxiety'<br><br>Few clients with personality disorders at current workplace and opines that mindfulness skills would be beneficial to most of the current clients<br><br>Challenges of past DBT placement included not having phone coaching and having to co-manage certain clients with individual therapists who were external to the clinic | Found the model of emotions helpful in sharing a case formulation with clients and coaching clients who are feel helpless in next steps<br><br>Biosocial social theory and DBT assumption that clients are doing their best underpins therapist's clinical approach even though not all of the clients seen are highly sensitive<br><br>Would not call self a DBT therapist due to insufficient training or certification<br><br>Interest to learn more about DBT after first encountering it during postgraduate training<br><br>First learnt about DBT during postgraduate training several years ago<br><br>'Difficult to imagine that clients would be able to afford DBT's level of treatment in private healthcare when it is already costly in public healthcare<br><br>Questions about the feasibility of gathering multiple clients with personality disorders in a group where conflict may affect their motivation to complete the treatment in a private healthcare setting'<br><br>DBT a resource-intensive treatment; public institutions may have more resources to pull together in order to sustain a high level of treatment services | Has not encountered clients in current health setting or past school-based setting requesting for DBT<br><br>Few clients with personality disorders at current workplace and opines that mindfulness skills would be beneficial to most of the current clients |

*(continued on p.340)*

## Table P1 (Continued)

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| Interviewee 5 | Mainly integrates DBT skills into individual therapy sporadically as the need arises<br><br>Some difficulties with recalling DBT strategies apart from core skills/ Able to recall validation and motivational strategies<br><br>Does not practice in a highly specific manner to DBT; practice across multiple types of therapies<br><br>Uses interpersonal effectiveness skills less than the other core skills<br><br>Therapist uses interpersonal effectiveness skills less than the other core skills because interpersonal ineffectiveness poses less of a problem for his clients, compared to clients with BPD being seen by female colleagues<br>Uses less interpersonal effectiveness skills because of less familiarity with its content and also because clients' interpersonal difficulties can be attributed to environmental problems with their family dynamic rather than a personal skills deficit<br><br>Thought of starting a DBT group in a university counselling centre a few years ago but did not do so because of busyness and the observation that there were low recruitment rates for other group therapies being implemented because of clients' reservations about groups | Therapist finds DBT skills to be useful whether or not a client has BPD, and that certain clients connect with theories like the biosocial theory and areas of dysregulation<br><br>Does not consider self to be a DBT therapist<br><br>Considers self to be DBT-informed and practices quite eclectically<br><br>Has found self to be more eclectic and to value having flexibility as a clinician<br><br>May not have gone in-depth into DBT to decide that this is the main approach that therapist wants to employ<br><br>First learnt about DBT during postgraduate training (masters training; first exposure was watching videos by treatment developer)<br><br>Attended a DBT skills training workshop and also trained via reading DBT manuals and other DBT books<br><br>Attended a DBT skills training workshop that was delivered locally | Majority of clients have not requested for DBT because they do not know about the various available therapies<br><br>Therapist has a mixed reaction to clients who self-diagnose with personality disorder but would not actually meet diagnostic criteria, while thinking that DBT would be helpful for other clients who have actually have BPD or BPD traits<br><br>Would not recommend DBT skills solely for clients with BPD because many of the DBT skills are transdiagnostic |
| Interviewee 6 | Advocated for a full DBT program in current workplace; full DBT requires the entire team to be trained so that has not materialized; doing DBT-informed individual psychotherapy<br><br>Follows the DBT formulation and setting a hierarchy of treatment targets; adhere to DBT assumptions; applying dialectical thinking; introducing 4 core DBT skills; provides adapted phone coaching where clients call the hospital's hotline and therapist does her best to return their call within 24 hours<br><br>Not part of a formal DBT consultation team<br><br>Not supported by a team of DBT practitioners<br><br>Has provided DBT-informed individual psychotherapy to approximately 150 clients over 6.5 years | Would not call self a DBT therapist without accreditation; wants to develop self further in DBT as part of therapist's professional identity<br><br>Requires further DBT training<br><br>First exposure in DBT was in a masters placement; pursued further training in DBT after postgraduate studies; took 3 online courses on DBT skills training, validation strategies and chain analysis with Behavioral Tech run by Marsha Linehan; travelled to Melbourne to attend a 3-day workshop by Marsha Linehan; stuck when trying to further training because subsequent trainings require the entire team to be sent<br><br>Was not exploring other therapy modalities during postgraduate training; current exploring schema therapy for Axis II conditions | Many clients have requested for DBT<br><br>Many clients with BPD have requested for DBT after researching online; some clients request for it at the outset and expect to access the standard DBT program; therapist has to manage their expectations that this is unavailable in Singapore<br><br>Agreement with interviewer's clarification<br><br>Therapist is only able to offer individual DBT skills training; group skills training is unavailable in the hospital<br><br>At least 50 clients have requested for DBT over 6.5 years<br><br>Opinion that DBT can benefit many patients in a tertiary hospital, especially one that has a psychiatric ward |

*(continued on p.341)*

**Table P1 (Continued)**

| Interviewee | Interview Question | | |
|---|---|---|---|
| | **1b. Existing / past experience in DBT implementation** | **1c. 'Fit' of DBT with own treatment philosophy/clinical approach, including degree of DBT training** | **1d. 'Fit' of DBT for clients** |
| | Past experience with a DBT placement in a training clinic; tried to develop a DBT program together with a clinical supervisor; currently on first job as a postgrad psychologist<br><br>Placement or training experience in DBT was in 2015, several years ago; as a clinical psychologist-in-training; team of 4 tried to set up or pioneer a DBT program in the university training clinic; conducted intake assessments for clients and provided DBT-informed psychotherapy; therapist wrote up the protocol for DBT groups which were subsequently implemented by other trainees<br><br>Pioneered a DBT program several years ago<br><br>Only able to practice DBT individually for now | | |
| Initial Ideas | Variance in degree of implementation, with a minority of interviewees being part of a current DBT program, some having delivered DBT skills group before or having taken part in a DBT program that eventually closed down, and most persons integrating DBT skills or single DBT-interventions into their individual work that is based on a different therapeutic approach<br><br>Interviewees who were part of a DBT site in the past appear to carry more enthusiasm for setting up DBT in their current workplaces<br><br>Interviewees who are inclined towards other therapies e.g., psychodynamic or required to use a manualized treatment program are the least likely to continue using DBT<br><br>Less frequent use of interpersonal effectiveness skills across the board, some mixed opinions about distress tolerance skills | First exposure to DBT was during postgraduate training, and took the form of attending a lecture, watching a video, using DBT interventions under clinical supervision or completing a placement in DBT<br><br>Majority find DBT concepts helpful given their identification with an integrative therapy style, and others may not know DBT in-depth enough to decide if it fits well with their own clinical approach<br><br>Therapists who pursued further training in DBT are still fearful of calling themselves a DBT therapist due to not being accredited in it | Questioning the relevance of DBT for the target client population<br><br>The transdiagnostic value of DBT means that it is not recommended only for clients with BPD, but also for other psychiatric patients who need other help with emotions |

# Appendix Q

## Table Q1

*Excerpt from the Second Matrix as part of Charting*

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 1 | Yeah, cause, I'm likely to see a good proportion of adults and some of them have - many of them have complex trauma profiles. Sooo.. DBT is definitely one of the treatment modalities that I would consider la. | Yeah. Wow. Current setting ah… current setting, I would say that - | I guess he or she [clinical supervisor] must be knowledgeable about it in the first place la. Yeah, And I think naturally, naturally, in trauma or especially in complex trauma, I think DBT is also one of the more... I guess efficacious, or more evidence-based, treatments that have been found to be more suitable for this kind of profile? At least in the last two years. I mean, if you compare with like, at the start of [our career] when we really just [joined]... I think at that time, DBT... nobody talked about it. |
| Interviewee 1 | Of course those with um, if you're looking at adolescents, confirm those that have complex trauma histories. Chronic and multiple incidents of interpersonal trauma, those with emotional dysregulation difficulties and all the self-harming and suicidal tendencies la. Yeah. Um, adults-wise, similarly as well. So like, survivors of say, maybe, child maltreatment or interpersonal trauma that I guess has never been treated until they got to this point where - in their marital relationship, they experience violence. Yeah. So, many of - I would say majority of them female? Yeah yeah yeah, so these are the main clients I would say benefit. | I think, the skills training group la, definitely. And if you're looking at like, adolescents, and I'm thinking about the - like, *[organization's name's]* clients, *[name of a centre]*, or even *[name of a separate centre]* - the folks, right, yeah… group skills training is… seems like a good idea? | |
| Interviewee 1 | Yeah, that's good. That's good clarification. So not - because I was thinking of benefits in terms of therapeutic outcome. Okay, maybe we can go with the client first. So with the client, it's more safety and stability la. Ya… because some of the clients that I tend to use DBT components with are those with the suicidal and self-harming risk. So, one was to... I think, not only help the client to achieve some form of regulation. | Uh, I think developmentally… for adolescents, I'm just thinking. For the, like, developmentally, for adolescents - there are quite a lot of potential benefits in having group sessions. Um, of course the economies of scale [laughs] - yeah right, two hours, you can see six or seven kids. Yeah. Um... yeah, these two are the main things. I would say like the group dynamics la. Group dynamics... the developmental stage of the clients. But if I were to consider current [workplace] setting now, then I would say more individual [therapy]. Individual sessions. Yeah. Of course in previous settings also, I would say individual sessions are also - we do a lot of individual therapy right. | |
| Interviewee 1 | Yeah, so complex trauma is one. Um. I wouldn't say officially diagnosed BPD patients, I would say, [clients with BPD] features [laughs]. Clients who are like, have features, features of... Or maybe teenagers with presenting issues that are quite similar to the problems associated with BPD. Like the emotional dysregulation, maybe the risk issues of self-harming, the emotional lability kind of. Teenagers. | I think like no leh. If let's say to be candid about it. And if I were to think from possibly, some other local or other… I don't think we will - like not very culturally… I don't know if it's culturally, it's part of our culture to be able to do that, you know what I mean? Ya, ya. | |

***(continued on p.343)***

**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 1 | I wouldn't say it's organic. Although I would say we do have the space and the safety to suggest or say that 'hey, what do we think about this' but generally the stance is go with what the evidence says. Yeah. So, if for... for trauma, we are, if the - go with those evidence-based, you know like, first-line interventions. | Yeah. I would say that… I think that culturally, it doesn't come naturally to us to kind of voice out or verbalize like 'hey, I need more validation today, or that kind of thing'. It feels like it can be a tad uncomfortable for the therapist. | |
| Interviewee 1 | Yes, yes. I think, for me, yeah. And I think maybe because also if you look at the organization, whether we are, you know, whether the organization is looking - every client that comes in, then recruit them as part of our evaluation, right? Study, research, whatever... then usually in those kinds of cases like, we will think of like, okay, can we park them in TF-CBT or whatever, you know? | Yes. Which I think even between the individual supervisor and supervisee, takes time to kind of cultivate also. Yeah. So I would rather address that. Personally, I would rather address my supervisory needs in the individual supervision. | |
| Interviewee 1 | Umm… actually yes, yes, I would say so, yes [that TF-CBT is the preferred treatment]. Yeah. Especially for the children and adolescents. For the adults, actually, may not necessarily be the first line. | | |
| Interviewee 1 | Actually, of course important la. Because I say that very fact that the nature of the therapy itself is… or the nature of the clients that would more likely require this therapy itself is already the quite needy, and taxing type. All the more the therapist will require support, I feel. Whether it is from the supervisor or the management, in terms of recognizing like, DBT therapists, they are a more [gestures air quotation marks] special group of people because they dealing with the more uh, draining - for lack of a better word la - draining sort of, … yeah, yeah, severe needs, yeah. | | |
| Interviewee 1 | Yeah lor, yeah lor. In the past also, not much known about it [DBT] yet. Or at least the applicability to the trauma population right. | | |
| Interviewee 1 | … an intensive, intensive one. So in my opinion, the main driving force would have to be the evidence lor. At least my opinion la, for your population or speciality you see, your population of interest. | | |
| Interviewee 2 | Yeah, by the psychiatrist la. On the rare occasion I would get patients who say 'oh I've googled about it and it seems it's a, it's a gold standard to work - to have the skills to learn, for like PD la'. And some of them identify themselves as like, um, BPD, that's why, that's why they came to know about this. | Mm. I think it's having that group supervision and that consult team, you know, every couple of weeks you meet with them - like-minded people who are also practicing DBT, so you have support, you have that I guess mutual understanding of how you can implement it, and even people that you can consult with really helps. As compared to probably doing other forms of therapy, you know, Schema Therapy, whereby there's no consult team meeting every fortnight, maybe just an external supervisor coming in, but it's not part of the language very often. | I think it's definitely since I was a master student, like, working with, especially like the PD kind of patients like personality disorders, made me wonder are there some things that can actually help them that's a bit more structured, that's a bit more skills-based. Um, and I came across DBT and I always thought that it would be a good tool la, to have in my toolbox eventually. So when the opportunity came that we could do training as a team, um, it was something that felt natural that I should just pursue. |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 2 | Aware of their diagnosis because of what the doctor said. Yup. | I think it's the group therapy. So… um. I, I was thinking it would add value because like you know, maybe they feel very misunderstood or thinking they are the only ones who have all these issues, and all these problems, in their lives. So being in the group therapy, learning skills in a structured way, so having some organization um, will help them because sometimes their lives seem so chaotic, seems so disorganized, so having this safe place that is organized, is structured, with people who also probably have a lot of chaos in their lives is one place whereby they can feel more connected with people la. So that's the, that's the initial thought I had. | Uh, in Sydney… whereby the whole team went together to get the training cause, they… the DBT training, they don't come to Singapore. |
| Interviewee 2 | Mm [3-sec pause]. I would say that it's… it's… at least within our hospital setting, we would be testing out, actually, using a therapy that's quite well-researched on a population that's either quite treatment-resistant to CBT or other forms of therapy. With a standardized manual, and a huge team to support with the different modes like you know, phone coaching, consult team, group supervision and also the group therapy as well. So at least in our hospital setting, based on my understanding, it's to, it's to find a therapy modality that would work with the population - especially the PDs la. | I think the consult team, there's definitely benefits to it, but I guess as a clinician I thought more of the benefits to patients? It's like the direct contact with patients, which would definitely be the group therapy. Whereas the consult team, it's patient-related somehow, but it's not direct. I feel like it's not direct, it's more like an indirect contact with patients, because... yeah. | And I think that's a barrier for a lot of people as well. |
| Interviewee 2 | Yeah, yeah… and allow us to do group therapy for patients who might not be suitable for other groups. | I think definitely both of those things are prominent in the team. In terms of the support, there's definitely support when you need to talk about cases, you know, get some advice. But there's also support in terms of validation as well? Sometimes, as clinicians, we feel burnt out working with difficult populations, challenging behaviours from patients, so that's a platform whereby we can actually get the empathy, I guess? And support from colleagues. So in terms of the support, it's pretty strong, especially when we touch base once every two weeks. | It's very driven by, I guess, the enthusiasm of the team. |
| Interviewee 2 | Yeah, they might be part of the exclusion criteria, so they can't get into groups. | | Yeah, yeah, want to do this together. And I guess support from the HODs, support from organizations that are willing to fund us for the training or even our team's willingness to spend the money la. To go over in the first place. Cause not all expenses are covered. |
| Interviewee 2 | Mm [2-sec pause]. I think if we talk about each one of them briefly, for the patient side of things it would be definitely giving uh, using a modality that has proven to work with the population… um, the benefits to them would be maybe shorter treatment period, more targeted, behavioural targets that we're working on in sessions... within the DBT framework la, I think that would be the benefits to the clients. | | I would say that I'm glad that I had the chance to actually get trained and try it, and do it in the current setting… the original intention, I think I'm still staying quite true to it, despite challenges along the way. |
| Interviewee 2 | Not really. I think it's still, it's still about whether the client is suitable to do DBT with rather than the autonomy that I have. | | |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 2 | But I think I can relate to people who are in the team, or within the hospital setting, that they find it hard to implement DBT or have the free reign of doing that. Even though, like I said, in terms of individual patients, I can do what I want as long as it's ethical, as long as it fits the patient's profile la. | | |
| Interviewee 2 | [8-sec pause] No… [sits upright] I think I would agree that it's an internal motivation, usually as clinicians we'll see whether it works on the patient or not or works in the group setting dynamics, and how can we tweak it to make it work better, perhaps in the next group. So I'm not very surprised with the finding. | | |
| Interviewee 2 | I think somehow the group [DBT team] still manages. [Both laugh] That's not bad. Based on their own, like I said… enthusiasm to try something… and yeah, just believing that this would be something that will be beneficial la. | | |
| Interviewee 2 | Yeah, driven by… definitely internal motivation. | | |
| Interviewee 3 | Recently, not as much. But now that you talk about it ah, I remember doing a distress tolerance one before. But that was… maybe, a few years back. With an adult. Who was in my group program la, but who was having mood issues. Some self-harm. | I think it [phone coaching] is helpful. Cause I remember I had a client who actually - she didn't call me, she texted me, then after that I called her. Even though we finished [therapy], she was already no longer in our system. Yeah. So… but, that one's a bit tricky, I'm not sure if that's a good example. But I think it would be helpful even if it's for our own clients la. Yeah... let's say there are clients that are struggling, at some point, not that they've already done something, but let's say they are struggling. So that you're kind of there, going through it with them step by step in terms of what to do? I think that may be helpful. Yeah. | But I didn't mind at that time, because I was open to learning new modalities. I was so used to using CBT that I didn't, to me, using another modality is another set of tools in my toolbox. So to me, I was quite happy to learn a new modality la. Yeah. |
| Interviewee 3 | Yeah I may not use it as much in the group. It really depends. But sometimes I might talk about just the logical mind versus the emotional mind as well, in the group setting, so that they are also aware of it? But it's more of a concept thing, to get them to be aware that we need a combination of both, but may not be as much into detail as compared to if when I see them individually la, because it also is dependent on the needs of the group versus the individual. | I think also because now… because previously, at my workplace, we don't have a work mobile phone. But now we do all have a work mobile phone. So we contact our clients via that. So they can contact us regarding issues that they have, and stuff like that. And sometimes, and I would think that it's easier to call as compared to having to email us or, or something, you know. Um... yeah, so I think that can be helpful. And it's also helpful because very often when clients are experiencing intense emotions right, they may not have the brain space to really be thinking, or in the right space of mind to think 'okay, what do I need to do now? You know, that method, what are all the different things'. Even though you may have written it out for them, or you may have done something for them to remind them right, like cue cards of whatever. But sometimes, I think they are just not in the right space of mind. By talking to somebody, it can help you in that way. So that you're in the right frame of mind and let's try to do something about it. | |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 3 | Yeah, so it depends on how, the depth that I go in. Because if I go into too much depth, then it's only relevant for one particular individual a lot more, then I'm taking up time from all the others as well. That's why I may not do it as much in the group. | I think some of my clients now right, maybe not be to me per se, because I remember some clients, not about mood but it was more of the offending behaviours - but they will call in when they feel tempted. They will call their caseworker or probation officers when they feel tempted. So that's why I think this can be translated to our context, for DBT la. | |
| Interviewee 3 | Uh... [sighs] I think… for the group programs itself right, if we do do that, it may not be totally out? It's more of… I think we did consider going for… for, um, like, a proper DBT certification course before. The only thing is then, we were just thinking about what's the follow-up from it la, or weaving it into our intervention. Um... but the thing is also, our next question would be, then because if I change the manual per se then I'll also need to do a literature review on how effective is DBT for the population that I work with? | Mmm… I think it's actually quite crucial to, to have support no matter therapy you do or whatever modality it is. So, so, so… for my side, we actually do group supervision when it comes to running our group program. So we have a sheet where they reflect on how they did, stuff like that, and they rate themselves, then when they come into group they also share how they think they did. And it's also sharing about their own reflections as well la. So we do have a group supervision that happens almost every two weeks. | |
| Interviewee 3 | Yeah, cause our programs, our treatment programs, are all offence-specific programs. Um, targeted. They are not targeted at mental health per se. They are all the offence-specific kind of treatment programs. Yeah. It's only if they present with additional mental health issues, or emotional and mood issues, then I may weave in some other, um, other modalities la. | Wah. [Pause] I think ultimately like you say, it's really the internal motivation, the person seeing the value of that modality itself. Yeah. I think that will be the main thing that affects it. | |
| Interviewee 3 | Because also, right now my population is really the offence-specific kind of treatment. So if they do have other mood issues or mental health issues, then that's when we weave in other modalities la. Because even if they have mental health issues, very often they seek help from mental health professionals outside, be it IMH, or other hospitals, or private psychologists. Yeah... so even for other mental health issues, very often we may not be the ones working with them on it. | [Typing] Yeah, because I think it is a valuable modality. I do recall using it more during my placement, and I can see effects of it as well. As in, the short-term kind of effects or medium-term kind of effects. Um… and I wasn't using it on BPD clients, either. So I can see the usefulness of it la. So that's why I was thinking it'll be good la, to further enhance my skills in them, in the future, or even to do a refresher, in a way. | |
| Interviewee 3 | [Sigh] I think what stopped us was then how much could we weave that in… because we also had limited space, right? Limited number of people to send for it. So it was more of… then deciding which psychologist… it would be more pertinent to send them for the DBT [training]. In the end we decided that those people who mainly, who work more with people who have more mood issues, and... like, may have... may work with people who have more of the suicidal ideation, self-harm kind of stuff, so we decided that it would be more relevant for, for people who work more with the population that DBT was developed for la. Even though not BPD per se, but it they have some traits of it, a bit more. Yeah, so... not my population... it was more for other populations that the psychologists were seeing. So, we thought in terms of prioritizing who would need it more instead. | | |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 3 | [2 sec pause] I think only for those whereby… um, cause… I don't have a lot of BPD clients. And also because now, I mostly work with juveniles, right? So PD is also kind of hard to like, diagnose when they are still teenagers. … But I do see some value in some of the concepts like distress tolerance portions, or even the... the Wise Mind concept. I found it quite helpful because I think it helps them to understand a little bit more and be more aware of themselves, how they are responding to a situation. Yeah. Those are helpful la. For those whereby especially their moods are more labile, swings a lot. | | |
| Interviewee 3 | Yeah… but the thing is I feel that there are certain concepts in there, that are still helpful even if you do not have BPD or are not suicidal. But I find it helpful for those people whereby… it's the emo regulation, emo reg lor, that they need a lot of assistance with and I find it quite helpful. | | |
| Interviewee 3 | I think, if I do - like step out of this manual and not working with this current population that I am - I'd definitely want to refresh on, on DBT, for sure. Cause I find the concepts quite helpful. So I think that may be what I do next time. | | |
| Interviewee 3 | Yeah... then definitely it would be looking into and finding out more about these modalities la. Cause ultimately, we still want to be very evidence-based, for the population that we're working for. So we'd definitely look into the literature if that were to come up. | | |
| Interviewee 3 | [Pause] Well again I think it is how relevant it is for the population I work with. | | |
| Interviewee 3 | Yeah. Cause… my population is very niche. That is the issue here. Cause my population is very niche, and we mainly deal with offence-specific work. Targeting the offence-specific behaviours. If it is other mental health or mood issues, very often they do have other professionals working with them la. | | |
| Interviewee 3 | In my current workplace, I don't think it would make that much of a difference. Yeah… I think in my current workplace, maybe not so much of a difference [typing] um… | | |
| Interviewee 3 | And... and then, the other one, would again then go back to my main question is, the effectiveness of it for the particular population, you know, who you're using it with la. | | |
| Interviewee 3 | I think it goes back to how effective it is with the population you work with. That is the main thing la. Before… before even considering anything else. | | |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 4 | Um, my team responds that we are not trained [laughs] in DBT so we cannot give them - yeah, but the reason they request is 'cause they, they [training participants] deal with a lot of personality disorders, then they google online, they google that it's the gold-standard for BPD so that's why they want the training la. | Yeah I guess it's done informally, already. So... I think that, I guess with the informal ones. So, so, with the formal group it's a bit too much of your peers right, sometimes you need the support of someone more senior than you. So maybe that is... that is the value add? Um… uh, like a maybe more structured kind of support, I think that would be good. | Mmm… so that placement was my first exposure in DBT, and then, subsequently after leaving that placement, I'm not sure whether this is your subsequent question, uh, but I tried to pursue further training in DBT on my own. So I, actually took several courses with Behavioral Tech, which was run by Marsha Linehan. So at that time, a lot of the courses were offered online, I think via PsychWire or something, the online platform. Yeah. So I took uh, 3… classes? I think one was on DBT skills, one was on Validation strategies, then one was on chain analysis. Yeah. And I think in 2018, I also went to Melbourne, uh, to attend actually a 3-day workshop conducted by Marsha Linehan herself. Uh… yeah. And subsequently when I tried to further my training, uh... I got quite stuck because a lot of the trainings require the entire team to be sent. |
| Interviewee 4 | Other types. Any time I thought they would benefit from learning a bit more about emotions, lor. | Oh, I always thought it had value. I don't think I ever had the conception that it was like, just to call in and complain la. And I don't think it's like I give clients my handphone number, I assume it's a structured service. So yeah, I don't… I always wished I had that kind of support, because um. You know, it's always better for clients to learn in real-time, right. Rather than come into my session and recall something that happened a month ago. [Laughs] Yeah, I think 100% it's a very useful thing. | Oh, I forgot to say, that recently I attended the DBT-PE Intensive. [Smiles] Just last week. So, I did it on my own. Without the DBT team, still. |
| Interviewee 4 | If it's not PD, it's like… you know this guy has PD traits. He was just not diagnosed with it. Like you know, dysthymia but you realize they have some OC traits, for example. Or recurrent episodic depression. Yeah, they've had it their whole life but this is the first time they're coming in [for therapy]. I would say, it's always in the context of having some traits, not necessarily disorders and not necessarily part of the hospital diagnosis, yeah. | | Yes, yes, even this DBT-PE, this model, also makes it very clear about – what to prioritize, what to target. |
| Interviewee 4 | I, I don't have a lot of pure PTSD without some complex trauma background. Do I have any? Actually I don't. I had one RTA [road traffic accident] la, I wouldn't use DBT for that. | | I think at the beginning, when I was introduced to the placement, what kind of intrigued me or enticed me was that I would be receiving training to be able to manage complex cases and complex clients. Yeah. So that was the buy-in, or rather how I got intrigued and got started at that point in time. And at that point… I, I was also being told that I'd be picking up skills in an evidence-based treatment, something that has been shown to work and to be effective. |
| Interviewee 4 | Uh, I don't think it was necessary. I did exposure therapy and that guy got better extremely quickly. It was a very uncomplicated case. | | I think it does fit in quite well. I see it as a third-wave CBT, so I'm more… my training's more CBT *mah*, so actually it's fine. |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 4 | It was pure PTSD, he had no habit of avoiding his emotions. He did not need that kind of education. | | Yeah. I think it makes me want to learn even more and get myself more trained in it la. Which is why I go for the DBT-PE as the next step. So I think my interest continues to grow and I hope to seek more professional development in this area. |
| Interviewee 4 | [Shrugs] I don't know, it's hard to say? I have worked with about… I think I've worked with two *ang moh* [local slang referring to Westerners] clients and assessed personality of one. And they are equally clueless. But they have PD la, that's why they are clueless right. As to generally, I don't know, because I've not worked with any *ang moh* clients apart from that. | | Yeah, I self-funded. [Laughs] Quite a bit of money. |
| Interviewee 4 | Colleagues [frowns, shakes head], no lah. I think everyone knows that DBT is very evidence-based. Um, clients, no. | | I do recognize that as a clinician, I have certain, my skillsets are limited? So when I self-fund my own training, I think it's not just for my client. I mean definitely it's for them, but I believe I need to develop myself professionally first. And I make sure that I am kind of on-track before I can serve my clients. Yeah. |
| Interviewee 4 | Cause the nature of our referrals are… so these are, a lot of them are from the A&E. A lot of them are panic disorder, going there, they think they have a heart attack. Or, I mean… so that's one big group. Another big group is suicidal attempt but no Axis 2, no previous mental health issues. It's just really like a freak accident kinda thing. Um... but I don't think DBT was appropriate for the kind of population that we are looking it. | | Yeah, yeah, yeah. |
| Interviewee 4 | | | So I think it's balancing [gestures both palms facing upwards, moving both hands up and down], in the end. I would rather pay and be more confident and competent so that I can come back and do a better job. |
| Interviewees 5 to 15 | … | … | … |
| Interviewee 1 Summary | • Emphasis on evidence-based practice for client population of interest (complex trauma)<br>• DBT for complex trauma histories, and problems associated with BPD (emotion regulation difficulties, self-harm)<br>• Considered TF-CBT as first-line for treating children, because (1) did not know much about DBT's applicability to the trauma population yet and (2) organization is running a TF-CBT research program<br>• Stronger evidence emerging to support the use of DBT for complex trauma in the last 2 years as compared to no talk of DBT at the start of her career | • Most values the skills group due to economies of scale, opportunity to harness group dynamics, fit with the developmental stage of adolescent clients<br>• Finds that skills group would be useful in previous work setting, while individual sessions would be preferred for the current setting<br>• Consultation team brings together like-minded DBT practitioners who can share a mutual understanding of how to implement DBT; likes that consultation is part of the language | • Need for clinical supervisor to be knowledgeable in DBT |

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**Table Q1 (Continued)**

| Index Item / Interviewee | 1.1 Relevance of DBT to target client population | 1.2 Value of a DBT mode | 1.3 Pursuit of training opportunities or professional development |
|---|---|---|---|
| Interviewee 2 Summary | • Testing and using a therapy that is well-researched for PD or a treatment-resistant population<br>• Allows for group therapy to be provided for patients who are excluded from other groups<br>• Shortened treatment duration due to setting behavioural targets<br>• Internal motivation of DBT clinicians to review the application of DBT and modify it to work with their clients | • Consultation team involves like-minded people also practicing DBT and offers mutual support and consultation<br>• Other forms of therapy like schema therapy do not have consultation as part of the language<br>• Consultation offers support in terms of validation and receiving empathy to prevent burnout<br>• Group therapy helps client to learn skills in a structured way, having organization in their lives, and feeling more understood and connected<br>• Thought more about benefits to patients i.e., group therapy, as the consultation team does not feel like a direct benefit to them | • Was looking for a more structured treatment that could help patients with PD<br>• When an opportunity arose to train with a new DBT team, it felt natural to pursue it<br>• Team needed to travel to Sydney for training as training providers do not come to Singapore, which poses a barrier for many people<br>• Training efforts were very driven by enthusiasm of the team who wanted to do it together, because not all overseas expenses are covered<br>• Glad for the chance to train in DBT, try it and do it I the current setting, despite challenges along the way |
| Interviewee 3 Summary | • Use of DBT primarily determined by relevance and effectiveness for the offending population, which is very niche<br>• Sees values of DBT for clients with emotional lability and mood swings (even if they do not have BPD/are non-suicidal)<br>• Considered pursuing DBT certification but unclear about whether it could be weaved into existing treatment program that are all targeted at o'fending behaviour rather than mental health<br>• Would like to refresh DBT knowledge if transitioning to work with other populations in the future | • Phone coaching is helpful for walking through step-by-step coping with clients who are struggling<br>• Phone coaching is helpful because clients may not be the right space of mind to think about methods of coping when experiencing intense emotions<br>• Clients sometimes call caseworker or probation officers when they feel tempted to reoffend, so phone coaching could be translated to current context<br>• Already has regular/fortnightly group supervision that is used for joint reflection and ratings of practice<br>• Saw the usefulness of DBT via short-term or medium-term effects with non-BPD clients during past placement | • Open to learn new modalities apart from CBT and happy to have another set of tools in toolbox |
| Interviewee 4 Summary | • Community partners have requested for training in DBT because they work with a lot of personality disorders<br>• Does not use DBT solely for treating BPD, but any time a client would benefit from learning more about emotions<br>• Employs DBT for clients with dysthymia and personality disordered-traits<br>• Preference for using exposure therapy over DBT for treating PTSD without a complex trauma background as client did not have a pattern of avoiding emotion<br>• Nature of referrals from the A&E are panic disorder or patients with no existing mental health issues; DBT not needed<br>• No visible cultural differences in terms of emotional awareness<br>• No disagreement from colleagues about use of DBT as everyone knows that it is evidence-based | • Consultation team offers a more structured kind of support than informal peer supervision<br>• Phone coaching is a structured service, wished that this was available to help client learn in real-time | • Exposed to a training workshop in first job, but department did not adopt the therapy<br>• Studied the manual during master training, especially under instruction from a supervisor<br>• Would not train in DBT now, because already has two orientations for PD (schema therapy, psychodynamic therapy); but would have if just entering the field |
| Interviewee 5 Summary etc | … | … | … |

## Appendix R

**Table R1**

*Summary of Subthemes Grouped by Index Items*

| Index | Item | Subthemes |
|---|---|---|
| ***Motivations for Using DBT*** | | |
| Relevance of DBT to target client population | 1.1 | Treating complex conditions<br>Differing views of transdiagnostic applications<br>Motivation to help clients<br>Not used where clients' needs are niche |
| Value of a DBT mode | 1.2 | Adjunctive use of DBT groups<br>Team-based approach<br>Therapist willingness for phone coaching<br>Emphasis on individual therapy |
| Pursuit of training opportunities or professional development | 1.3 | Provision of DBT training<br>Roadblocks in DBT accreditation<br>Hesitance to over-specialize in one treatment<br>Experience of early training in DBT |
| Using DBT-interventions as an adjunctive treatment / integratively | 1.4 | No DBT purists in Singapore<br>Therapists value flexibility<br>Using DBT with other programs<br>Using DBT with clients without therapy |
| Clinicians' willingness or interest to work with BPD | 1.5 | Interest in personality disorders<br>Career focus |
| Clinicians' need for structure for treating challenging cases | 1.6 | Stabilization of crisis and chaos<br>Therapist and client responses to structure<br>Alleviation of therapist anxiety<br>Validation and change<br>Length of treatment |
| Compatibility or fit with own personal values | 1.7 | Values openness<br>Values clear boundaries<br>Values dialectical thinking<br>Genuinely wants to help clients |
| Cognizance of benefits to the organization | 1.8 | Clients in mind<br>Salient in top-down projects<br>Founder's mission |
| ***Use of DBT*** | | |
| Level of familiarity with DBT | 2.1 | Training increases confidence<br>Cannot over-overspecialize<br>No avenues for gaining experience<br>Comprehensiveness of DBT<br>Mindful of core dialectic |
| Extent of DBT implementation | 2.2 | Integrative use of DBT<br>Limited implementation<br>Non-systematic |
| Fidelity to DBT | 2.3 | No standard DBT<br>No team<br>Difficulties with individual DBT<br>Therapeutic drift<br>Low knowledge of fidelity scales |

***(continued on p.352)***

**Table R1 (Continued)**

| Index | Item | Subthemes |
|---|---|---|
| Description of clinical setting or clinician's employment status/work role | 2.4 | Contextual factors<br>Capacity<br>Working in silos |
| Earliest exposure to DBT | 2.5 | Postgraduate training<br>New therapy<br>Early access to training<br>Ongoing supervision and practice<br>Following supervisors' approach |
| ***Clients' Responses to DBT*** | | |
| Initial buy-in to starting DBT | 3.1 | Supply and demand |
| Receptiveness to specific DBT-interventions | 3.2 | Simplicity of skills<br>Westernization in interpersonal effectiveness<br>Expectations of distress tolerance<br>Difficulties grasping mindfulness<br>Utility of chain analysis<br>Biosocial theory promotes understanding<br>Dislike worksheets<br>Homework non-completion |
| ***Navigating the Organizational Hierarchy or Structure*** | | |
| Autonomy in planning and delivering treatment | 4.1 | Therapy-client fit<br>Perceived flexibility in private sector<br>Systemic considerations<br>Stakeholder involvement<br>Lack of supervision<br>DBT on top of core work<br>Bottom-up versus top-down |
| Working with stakeholders for treatment delivery | 4.2 | Cannot meet demand<br>Over-representation of psychologists<br>Need to train other disciplines<br>Outreach to psychiatry<br>Working in silos |
| Buy-in or receptivity from key stakeholders/organization members | 4.3 | Managerial support<br>Lengthy approval processes<br>Need for medical doctor with clout<br>Interest from other disciplines |
| Heterogeneity in perspectives based on workplace roles | 4.4 | Small piece of a big picture<br>Different considerations<br>Impasse between administrators and clinicians |
| Access/availability of resources (or other issues related to resource distribution) | 4.5 | Protected time<br>Red-tape versus decentralization<br>Logistical and pragmatic barriers<br>No training providers |
| Routine collection of data or being data-informed | 4.6 | Pre-post treatment questionnaires<br>Formal program evaluation<br>Measuring a single DBT intervention<br>DBT adherence not measured |
| Need for local research or formal program evaluation to promote DBT | 4.7 | Systematic implementation required<br>Chicken-and-egg problem<br>Suggested areas for research |

***(continued on p.353)***

**Table R1 (Continued)**

| Index | Item | Subthemes |
|---|---|---|
| Openness and vulnerability in staff teams | 4.8 | Fear of evaluation<br>Organizational hierarchy<br>Therapist needs |
| ***Navigating the Wider Context (National Landscape)*** | | |
| Impact of professional regulation on DBT | 5.1 | Barrier to entry vs. ensuring ethical practice<br>New services are organically grown<br>Training in specific therapies |
| Impact of DBT accreditation | 5.2 | Concerns about competence<br>Clinician's interests<br>Accreditation secondary to acquisition |