Defining Emotional Dysregulation in Early Childhood

Thesis submitted by

Kimberly Chew Xu Hwei

BPsych (Honours)

March 2023

In fulfilment for the requirements for the degree of

Doctor of Psychology (Clinical Psychology)

College of Healthcare Sciences

James Cook University

Acknowledgements

… And when she no longer had the strength to stand
She allowed herself to let go
And down… down she fell
Deep into that rabbit hole
Where there within she found herself
With strength again bestowed
And from the mud she climbed above
And left her worries below.
- *Christie L. Starkweather*

My postgraduate journey has been a long and challenging one. I would like to thank all the people who have guided me out of many rabbit holes over the years.

My wholehearted thanks and appreciation go to my advisory panel. To my primary advisor Denise, it has been such a privilege to be supervised by you. I cannot begin to explain how much I have learnt from you and how much of an inspiration you have been to me. Thank you for believing in me and cheering me on through some really difficult times. I will miss our Tuesday morning meetings. To my other advisors, Peter and Nerina, thank you so much for your support and guidance. It has been a real pleasure working with each of you.

The completion of this project would not have been possible without the love and support of my husband and three children, Christian, Isaac, and Cassandra. Thank you for always encouraging me to follow my dreams. This thesis is dedicated to you. I love you.

I am grateful to Geraldine Lee for being there for our family and taking good care of me and the kids. Balancing work, postgraduate studies, and caring for three young children would not have been possible without you. Thank you, you have been a blessing to us.

I would also like to extend my appreciation to Professor Liz, staff of the graduate research school, the JCU librarians, and my fellow HDR students for the guidance, resources, and encouragement. Thank you for making my journey a less lonely one.

Finally, I would like to acknowledge the expert practitioners who agreed to participate in this project. Thank you for sharing your time, expertise, and wisdom with me. Your input has been invaluable.

Statement of the Contribution of Others

This thesis was completed by the author under the supervision of Associate Professor Denise Dillon, Dr Peter Chew, and Professor Nerina Caltabiano. Each advisor provided editorial guidance and intellectual support throughout the entire research project. Chapter 3 of this thesis also benefited from the editorial advice of Dr Elizabeth Tynan.

Nature of Assistance	Contribution	Contributors
Intellectual support	Data analysis Statistical support Interpretation of results Editorial assistance	Associate Professor Denise Dillon (primary advisor), James Cook University, Singapore Dr Peter Chew (secondary advisor), James Cook University, Singapore Professor Nerina Caltabiano (advisor mentor), College of Healthcare Sciences, James Cook University, Australia
Editorial support	Editorial assistance for Chapter 3 (Review of Emotional Dysregulation in Early Childhood)	Professor Elizabeth Tynan, Graduate Research School, James Cook University, Australia

Abstract

Emotional dysregulation in young children, broadly defined as the failure to appropriately and effectively regulate emotions, has captured the attention of researchers in recent years. There has been a desire to better understand childhood emotional dysregulation as it has been associated with negative outcomes such as child adjustment difficulties, elevated parental stress levels, and the development of psychopathology in adulthood. To ensure that children receive the timely intervention that they need, detecting and measuring emotional dysregulation in young children accurately and reliably is essential. However, a lack of consensus over the conceptual approach to detecting and measuring emotional dysregulation in children from birth to 8 years old (i.e., continuous vs. categorical approaches) raised the question of whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders. To answer that question, the current project explored how childhood emotional dysregulation was defined by researchers and practitioners. This was carried out in two phases using a mixed method research design. In the first phase of this project, a systematic review and analysis of the literature was conducted to examine the terminology used by researchers to describe emotional dysregulation in children under 8 years old. Components of grounded theory, a systematic qualitative research methodology, aided in the synthesis and analysis of relevant data from the review's final list of articles. In the second phase, findings from the systematic review and analysis were disseminated to an international Delphi panel of seven expert practitioners in the field of clinical and educational psychology to seek additional input before coming to a reliable group consensus on the defining features of emotional dysregulation in early childhood. Findings from both phases culminate in a definitional framework for emotional dysregulation in early childhood that is anchored in three main definitional categories. Namely, how childhood emotional dysregulation manifests

emotionally, cognitively, and behaviourally (manifestation), the resulting impact that emotional dysregulation has on children and the impairment it causes (distress), and the period of time when emotional dysregulation is likely to develop and how emotional dysregulation evolves over time (development). Findings suggest that emotional dysregulation in early childhood can be considered a mental health condition as it deviates from developmentally appropriate behaviour, causes distress and dysfunction, and can be dangerous for children and others around them. Results also suggest an integrative approach to the detection and measurement of childhood emotional dysregulation, where emotional dysregulation in early childhood is defined as a mental health disorder but conceptualized as a continuous variable. These findings have important implications for both researchers and practitioners. Essentially, the current definitional framework has outlined specific criteria that will increase diagnostic accuracy, aid in the selection of a suitable assessment tool, and add valuable insight to the debate over the most suitable conceptual approach for detecting and measuring emotional dysregulation in children from birth to 8 years old. The current definitional framework and findings from the current project can also be used to foster future theory development and hypothesis testing that will contribute to this upcoming and important area of research.

Table of Contents

List of Tables

List of Figures

Chapter 1

Situating the Research: Introduction

Children who are aggressive, irritable, and inconsolable are commonly labelled by mental health professionals as being "emotionally dysregulated" (Keenan, 2000; Thompson, 1994). Although not formally classified as a mental health disorder by The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), emotional dysregulation in childhood has been broadly defined as the failure to appropriately and effectively regulate emotions (Samson et al., 2014). The term generally suggests deficits in emotional control that alter a person's experience and expression of both positive and negative emotions. Behaviorally, emotional dysregulation may manifest as uncontrollable anger outbursts that include crying, screaming, and aggression towards oneself or others. However, emotional dysregulation may also manifest as elevated states of arousal or hyperactivity when intense feelings of joy or excitement are experienced (Herndon et al., 2013; Keenan, 2000).

Emotional dysregulation can be experienced across the lifespan; difficulties regulating emotions have been detected from birth and are believed to be stable over time (Crowell et al., 2015). Consequently, emotional dysregulation in young children especially has captured the attention of researchers in recent years. There has been a desire to better understand childhood emotional dysregulation as it has been associated with negative outcomes such as child adjustment difficulties (Herdon et al., 2013), elevated parental stress levels (Chan & Neece; 2018), and the development of mental health issues in adulthood (Crowell et al., 2015; Keenan, 2000). To ensure that children receive the timely intervention that they need, detecting and measuring emotional dysregulation in young children accurately and reliably is essential.

This chapter introduces the impetus for an operational definition in the assessment of emotional dysregulation in early childhood and the rationale that moved this project forward.

This chapter also discusses the importance of positionality in qualitative and quantitative research before contextualizing the researcher within the current research project. This is achieved by critically reflecting on how personal opinions, values, and actions of the researcher have influenced various stages of the research process. The chapter concludes with an overview of the thesis outline.

The Importance of Positionality

Before discussing the background and rationale for the current research project, the importance of positionality and contextualizing the researcher is first highlighted. Positionality is defined in the literature as the recognition and declaration of one's own worldview or philosophical position in a piece of academic work (Jafar, 2018). Here, positionality mainly concerns the researcher's individual beliefs about the nature of reality and individual beliefs about the nature of justifiable knowledge (otherwise known as ontological and epistemological assumptions). Oftentimes, these assumptions are determined by a researcher's values and beliefs that have been shaped over time by gender, religion, race, ethnicity, and so on (Holmes, 2020).

Contextualizing the researcher and understanding the lens through which the research has been developed and analysed is considered to be an integral part of the research process (Jafar, 2018). Essentially, positionality incorporates prior knowledge and understanding of the researcher to define the boundaries in which the research is produced. This makes research output more meaningful as it justifies a researcher's choice of methodology, facilitates understanding of why a study was developed in the first place, and helps the reader see value in a study's findings (Creswell & Poth, 2016; Jafar, 2018). The process of establishing a researcher's positionality requires reflexivity, which is the act of self-reflection that requires a researcher to be critically conscious of how one's own opinions, values, and

actions influence all stages of the research process (Olukotun et al., 2021). Reflexivity has been helpful in establishing my own positionality as discussed in the following section.

Philosophical Position

Positionality has been argued to be just as important in quantitative research as it is in qualitative research. This is because it encourages readers to not only consider what is being measured but who is doing the measuring when making sense of research findings (Jafar, 2018). Thus, positionality is discussed here to highlight how my own personal experiences, values, and beliefs have shaped the overall development of this research project and how positionality has guided the decision to incorporate elements of constructivist grounded theory into the project's approach to qualitative data analysis. As researchers have been advised to explore and acknowledge their positionality before commencing any research journey, time was taken at the early stages of this project to reflect on personal beliefs and preconceptions that were likely to influence the research process (Holmes, 2020; Olukotun et al., 2021).

When conceptualizing my own philosophical position, as suggested by Savin-Baden and Major (2013), I found it helpful to acknowledge the personal beliefs and values that have the potential to influence the research and acknowledge that the research will be influenced by myself and my research context. This process of conceptualization and self-reflection recognizes that researchers are part of the social world that they are studying and is in line with the ontological and epistemological assumptions of the constructivist and interpretivist paradigms which propose that there is no single reality but many different realities that can be constructed based on the standpoint of the author (Holmes, 2020).

Without a pre-existing theoretical framework on emotional dysregulation, an inductive approach to data analysis was deemed to be the most suitable methodology to answer this project's research questions. This approach draws on constructivist grounded

theory which is known for allowing the researcher to co-construct rather than to simply extract meaning from the data.

As such, the findings in this thesis are offered as only one possible interpretation based on my standpoint as a psychologist and mother of three young children. My doctoral training as a clinical psychologist has afforded me the opportunity to advance my skills in assessing and treating young children with mental health conditions. However, my career as a psychologist started eight years ago through my role as an associate psychologist at a Voluntary Welfare Organization (VWO) in Singapore that provides early intervention and special education to children with special needs from birth to 18 years. During my time as an associate psychologist, I worked closely with a team of educational and clinical psychologists from different backgrounds and with varying amounts of work experience. I also worked as part of a transdisciplinary team that consisted of psychologists, social workers, speech therapists, occupational therapists, music therapists, and physiotherapists. My experience working with these professionals has shaped my approach to psychological assessment and my belief that psychological assessments for young children should consider all developmental domains of a child and the impact that challenges in a certain domain (e.g., speech and language deficits) might have on a child's emotional well-being.

Working with young children has also highlighted the impact that environmental factors, such as parents and their parenting styles, have on a child's emotional development and well-being. Even though I am not a parent of a child who experiences chronic difficulties with emotional regulation or a child with special needs, I acknowledge the influence that being a parent has had on my research. More specifically, I believe that my experience as a parent has enabled me to better relate to the parents that I work with, the difficulties that they experience, and their desire to alleviate their child's suffering. This has shaped my belief that parents will also benefit from psychological intervention and should be fully involved in the

therapeutic process of treating emotional dysregulation or any other mental health difficulty faced by young children. Collectively, this has motivated me to develop a research project that will not only benefit practitioners and children struggling with emotional dysregulation but also help to minimize some of the stress faced by their parents. The impetus for the current research project is further elaborated in the following section.

Rationale for Current Research

My interest in understanding childhood emotional dysregulation stemmed from my personal experience working as an associate psychologist in a VWO in Singapore. In my role as an associate psychologist, I conducted psychological assessments and provided psychological intervention to children from birth to 18 years old with special needs (e.g., physical disabilities, neurodevelopmental disorders) who struggled with cognitive, social or emotional difficulties. These included difficulties with emotional regulation, concentration and focus, making friends, and behaviour management (e.g., tantrums, defiance etc). After working for about two years or so, I was assigned to the VWO's Early Intervention Program (EIP) that serviced children between 0 to 6 years old. The aim of the program was to help children meet their developmental milestones and improve their functional skills and abilities.

The VWO's transdisciplinary approach to early intervention not only required psychologists to work closely with professionals from other disciplines (e.g., speech therapists, occupational therapists, teachers etc) but to also work closely with the child's parents. The transdisciplinary approach to early intervention is typically characterized by a "shared vision" and teamwork across disciplines, where the child's family is considered to be a vital part of that team (King et al., 2009). For young children, early intervention often included conducting home visits so that assessments and intervention could be carried out in the home environment (where a child is the most comfortable and spends the most time). Through home visits, I had the opportunity to extend my understanding of children and their

families beyond the therapy room and see first-hand how entire families can be affected when a child struggles with physical or neurodevelopmental difficulties.

The catalyst for this research project was an incident that I experienced several years ago at a transdisciplinary team meeting with the parents of a child with autism spectrum disorder (ASD) enrolled in our VWO's EIP. During this meeting, a colleague from another department shared their experiences working with the child and reported to parents that their child had been emotionally dysregulated on multiple occasions while in class and this had impacted his ability to learn and interact with peers. I recall that this comment was met with concern and confusion by both parents. The parents were reassured by the team that their child would be referred to the psychology department for intervention but were not offered any explanation as to what emotional dysregulation actually is. At the time, I couldn't help but wonder if parents were walking away from the meeting thinking that there was now something else that was "wrong" with their child and if the team had unintentionally added to their stress levels.

Following this meeting, I was keen to learn more about emotional dysregulation in children and began to pay more attention to when the term "emotional dysregulation" was being used and who was using it. In subsequent team meetings, I realized that the term emotional dysregulation was frequently used in discussions with parents without any explanation beyond "emotional regulation difficulties". On some occasions, children were labelled as having an "emotional dysregulation disorder", suggesting a pathological condition, to parents and in discussions across disciplines. This caused me to reflect on the following questions. If professionals were to label children as emotionally dysregulated and potentially create more stress for their parents, wouldn't it make sense to have a clear understanding of what emotional dysregulation in early childhood is? How do we, as

psychologists, detect and measure emotional dysregulation in children? And how is emotional dysregulation in children treated?

As a junior psychologist at the time, I approached my clinical supervisor and more senior colleagues in my department to find out more about how emotional dysregulation in children is detected, measured, and treated. With regards to psychological assessment in children, they shared that emotional dysregulation was largely detected through behavioural observation and whether or not a child was deemed to be emotionally dysregulated was based on individual clinical judgement. Practitioners would generally take note of problematic behaviours such as tantrums, excessive crying, and self-injurious behaviours (e.g., hitting or biting themselves). Emotional dysregulation was measured by recording the numbers of episodes and was treated like a behavioural problem (e.g., reducing the frequency of a behaviour) through positive or negative reinforcement techniques (e.g., reward systems, removal of privileges).

After consulting with colleagues, preliminary reading of the scholarly literature revealed that emotional dysregulation can occur across the lifespan and can be either transient or chronic in nature (Crowell et al., 2015; Keenan, 2000). Chronic emotional dysregulation in early childhood, in particular, has captured the attention of researchers as it has been associated with several negative outcomes, such as the development of psychopathology in adulthood (Crowell et al., 2015; Keenan, 2000). To ensure that children receive the timely intervention they require, it is essential for emotional dysregulation to be accurately and reliably detected and measured. However, the accurate detection and measurement of emotional dysregulation in early childhood is complicated by a lack of consensus over which conceptual approach to assessment is most suitable.

More specifically, some researchers have viewed emotional dysregulation in early childhood as a continuous or dimensional construct and have used measures of emotional

regulation to quantify emotional dysregulation as synonymous with low emotional regulation (Shields & Cicchetti, 1997). Other researchers have argued that emotional dysregulation in early childhood is a categorical construct (i.e., where emotional regulation and emotional dysregulation are two separate and distinct phenomena) that warrants its own assessment tool (Samson et al., 2014). As the conceptualization of emotional dysregulation in early childhood lacks consensus, it is necessary to review the defining features of emotional dysregulation in early childhood and establish a definition that is suitable for this age group (i.e., 0-8 years old). This is consistent with the literature that has highlighted the need for an agreed upon definition for emotional dysregulation (Thompson, 1994) as well as the importance of addressing any definitional inadequacies before selecting a conceptual approach to assessment and pursuing structure-uncovering statistical procedures, such as taxometrics, that are discussed further in Chapter 2 (How are Concepts Structured?) (Mullen, 2003).

Research Aim

Based on the current lack of consensus over the conceptual approach (i.e., continuous versus categorical) to detecting and measuring emotional dysregulation in early childhood, the current project aimed to establish whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders. This was achieved by 1) exploring how emotional dysregulation is defined by both researchers and practitioners (e.g., clinical and educational psychologists) who assess and treat children struggling with emotional dysregulation and 2) constructing a definitional framework that can serve as a basis for future scientific inquiry in this area.

Research Design

Establishing how emotional dysregulation in early childhood is defined by researchers and practitioners was carried out in two phases using a mixed method research design. In the first phase of this project, a systematic review and analysis of the scholarly literature was

conducted to determine how researchers defined emotional dysregulation in children from birth to eight years old. The systematic review was also used to identify and review measures of emotional dysregulation in early childhood. As the first phase of this project focused primarily on conceptual issues, such as the terminology used by researchers to define emotional dysregulation in early childhood, a qualitative approach to data analysis was selected over a quantitative one. Based on the philosophical position of the researcher outlined earlier in this chapter, elements of constructivist grounded theory (e.g., self-reflection, case comparison etc.) were incorporated into the first phase's qualitative approach to data analysis. Grounded theory is discussed in greater detail in Chapter 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis).

In the second phase of this project, findings from the systematic review were disseminated to a Delphi panel of international expert practitioners in the field of childhood emotional dysregulation. The aim of the second phase of this project was to seek additional objective input before coming to a reliable group consensus on the defining features of emotional dysregulation in early childhood. The Delphi method is a forecasting process framework based on the results of multiple rounds of questionnaires sent to a panel of experts. The current Delphi approach was considered to be "modified" as results from a traditionally open-ended set of questions in the first round was replaced by findings from the systematic review conducted in the first phase of this project. This approach was selected based on the premise that group opinion (i.e., drawing on collective expertise) is more valid and reliable than individual opinion (Avella, 2016). Essentially, the Delphi method is a structured approach to problem-solving that overcomes difficulties associated with face-to-face group discussions, such as groupthink, as well as geographical limitations (e.g., through the use of email and online platforms). The Delphi method was also selected as it removes

any unintentional researcher bias that may have been introduced through the systematic review process. Based on this, the Delphi method was deemed to be more suitable than in-depth interviews or focus groups for this particular project. Content analysis of additional open-ended responses from expert practitioners was also carried out during the second phase of the current project to provide a more in-depth understanding of findings.

Significance of Research

Results from the current research project identify some implications for both research and clinical practice. More specifically, the generation of a definition will establish whether emotional dysregulation in early childhood is generally regarded as a disorder that is discretely separable from already-characterized childhood disorders. Defining emotional dysregulation in early childhood will not establish the construct's latent structure per se; however, a definition co-created by expert practitioners can be used to facilitate discussions regarding a suitable conceptual approach to assessment (i.e., continuous versus categorical) and to aid in the selection of an appropriate assessment tool. Identifying an appropriate assessment tool that accurately and reliably measures emotional dysregulation in early childhood will assist mental health practitioners in assessment, diagnosis, and treatment planning so as to ensure that children struggling with emotional dysregulation receive the timely intervention that they need. The accurate detection of emotional dysregulation in young children will also ensure that developmentally appropriate childhood behaviours (e.g., transient emotional dysregulation) are not misdiagnosed or pathologized by practitioners, another concern highlighted in the literature (Barbosa & Leite, 2020; Krieger & Stringaris, 2013). An operational definition will also foster future theory development and hypothesis testing that will contribute to the existing knowledge base on emotional dysregulation in early childhood.

Scope of Thesis

This thesis contributes to the existing literature on emotional dysregulation by providing an operational definition of emotional dysregulation in early childhood. Chapter 1 provides an overview of the current project and introduces the motivation, aim, and significance of the research. The philosophical position of the researcher is explored in detail which enables the reader to understand the lens through which the work here has been developed and analysed. Also discussed is the matter of how the researcher's philosophical position was used to inform the choice of research methodology. Chapter 2 (How are Concepts Structured?) and Chapter 3 (How is Emotional Dysregulation in Early Childhood Conceptualized?) present the background for the current project and position it within the broader context of the need to accurately detect and measure mental health conditions in young children. More specifically, Chapter 2 highlights the importance of latent structure analysis with regards to mental health conditions and discusses the need for a valid definition of a construct before proceeding with structure-uncovering statistical procedures. Chapter 3 builds on the chapter before it by highlighting definitional inadequacies and opposing views in the conceptualization of emotional dysregulation in early childhood (i.e., continuous versus categorical approaches). This is achieved by reviewing the literature on the development (i.e., risk factors, protective factors, and consequences), assessment, and treatment of emotional dysregulation in children from birth to 8 years old.

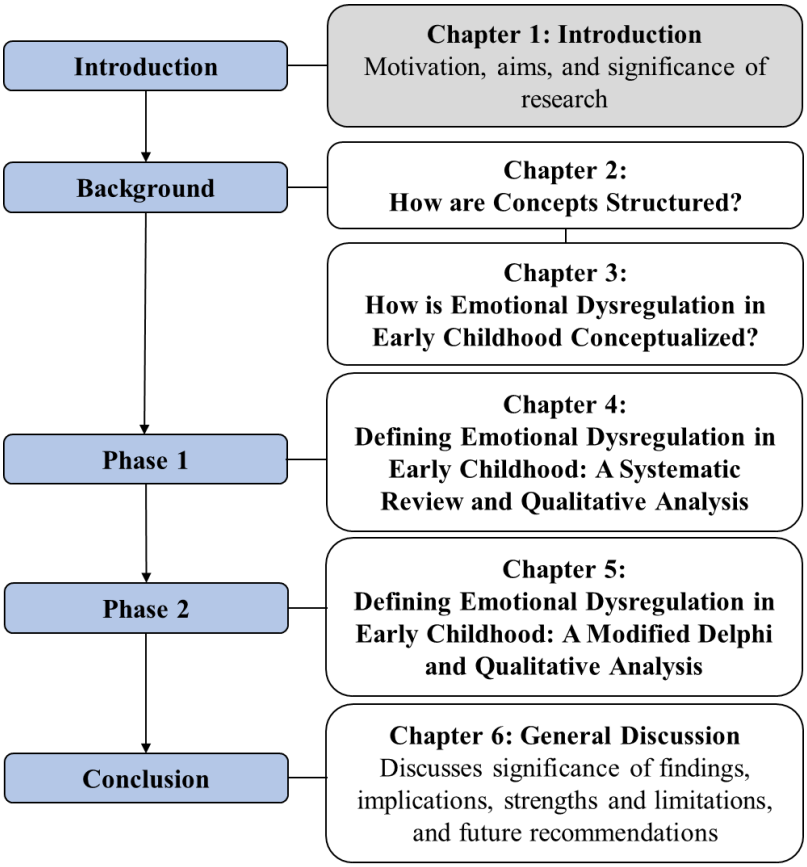
Chapter 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis) establishes how researchers define emotional dysregulation in children from birth to 8 years old through a systematic review of the scholarly literature. Qualitative data analysis of search results revealed two potential definitional frameworks (continuous versus categorical) consisting of 25 statements that define childhood emotional dysregulation. This chapter also summarizes the assessment tools currently available for

measuring and detecting emotional dysregulation in early childhood. Chapter 5 (Defining Emotional Dysregulation in Early Childhood: A Modified Delphi and Qualitative Analysis) details the presentation of findings from this project's systematic review to a Delphi panel of seven international experts in the field of childhood emotional dysregulation. Following two rounds of online questionnaires, consensus was achieved for the inclusion of 13 of the original 25 statements that defined emotional dysregulation in early childhood that were included in the project's final definitional framework. Consistent with the continuum approach taken for many psychological constructs, most of the Delphi panel experts agreed that emotional dysregulation in early childhood should be viewed as a continuous variable (i.e., synonymous with low emotional regulation) rather than a categorical variable (i.e., a disorder that is discretely separable from already-characterized childhood disorders). Content analysis (adapted from Burnard, 1991) of additional open-ended responses from expert practitioners revealed the factors that are believed to influence emotional dysregulation in early childhood.

Chapter 6 (General Discussion) summarizes findings from Chapters 4 and 5 and presents a definitional framework for childhood emotional dysregulation. The significance of the definitional framework and its implications for future research and clinical practice are also discussed. This chapter concludes the current research project and presents overall findings in relation to the aim of the project and existing theory. The strengths and limitations of the project are also acknowledged. The scope of this thesis is summarized in Figure 1.1 and will be presented at the start of each chapter.

Figure 1.1.

Scope of Thesis



Chapter Conclusion

This chapter presented an overview of the motivation for the current research project and the implications that findings will have on research and clinical practice. The researcher's philosophical position was explored as well as how the researcher's ontological and epistemological assumptions informed the methodological approach to qualitative data analysis. The next chapter will provide a general introduction to latent structure analysis and discuss its importance in relation to detecting and measuring emotional dysregulation in early childhood.

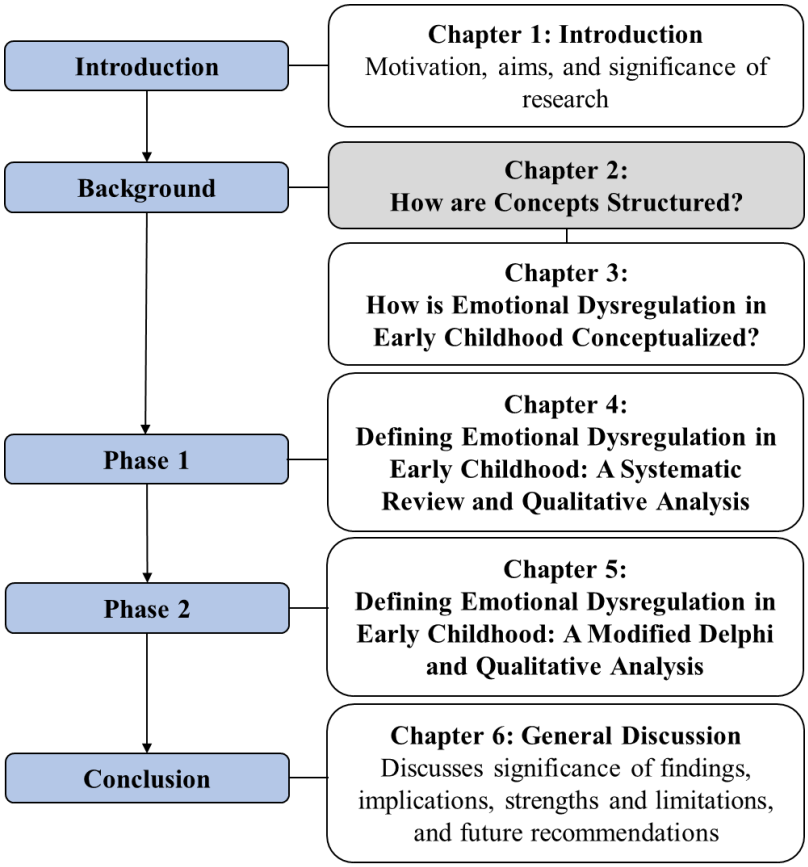
Chapter 2

How are Concepts Structured?

Chapter 2 highlights the importance of a valid definition in latent structure analysis which sets the premise for this thesis and for understanding how professionals define emotional dysregulation in early childhood. In this chapter, latent structure analysis is introduced and discussed within the context of psychological constructs such as mental disorders. The important implications associated with distinguishing categories from continua in the detection and measurement of mental disorders is also discussed.

Figure 2.1.

Scope of Thesis



The Emergence of Latent Structure Analysis

Many constructs of interest in psychology such as intelligence, motivation and mental disorders are latent, meaning that they cannot be directly observed or measured

(Bartholomew, 2001). In order to make inferences about latent constructs, latent structure analysis emerged in the twentieth century in an attempt to explain the fundamental nature of any construct using a suite of sophisticated statistical procedures (Ruscio & Ruscio, 2008). Essentially, latent structure analysis has been used to assess whether a construct is categorical or continuous, regardless of how people have chosen to conceptualize or measure it. This has been especially helpful for researchers and clinicians as structural knowledge has some important implications for detecting, measuring, and treating mental health conditions (Ruscio & Ruscio, 2002; Ruscio & Ruscio, 2004). Latent structures can be purely categorical, purely continuous or, in some complex cases, a hybrid of both categorical and continuous structures can be possible (Meehl, 1995; Ruscio & Ruscio, 2008).

Within the latent structure literature, continuous constructs are defined as existing on a continuum along which objects or individuals differ only quantitatively (Ruscio & Ruscio, 2008). Any classifications that are formed for these constructs are considered to be completely arbitrary (e.g., in the case of weight, being called “fat”). Common examples of continuous constructs include weight, blood pressure, and temperature. Conversely, categorical constructs are defined as constructs that are divided into nonarbitrary classes (or taxa) at a latent level. As such, there is a clear subdivision and objects or individuals either belong to a class or they do not (Ruscio & Ruscio, 2008). Common examples of categorical classifications include animal species, race, and chemical elements. Within clinical psychology, the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association) is another popular example of categorization where all mental disorders are depicted as latent taxa. In the DSM, mental disorders are organized into diagnostic categories which are associated with a specific set of diagnostic criteria that determine whether a person is “disordered” or not (Masyn et al., 2010). The DSM’s approach to diagnosing and measuring mental disorders has faced heavy criticism by researchers and

clinicians over the years that has highlighted the need for latent structure analysis within clinical psychology (Kraemer, 2007; Philips, 2020; Widiger & Samuel, 2005).

Criticisms of The Diagnostic and Statistical Manual of Mental Disorders

The introduction of the Diagnostic and Statistical Manual of Mental Disorders – Third Edition (DSM-III; American Psychiatric Association) in 1980 marked a radical shift in how mental health conditions were conceptualized and diagnosed by clinicians (Hankin, et al., 2005). Specifically, the DSM-III, developed by the American Psychiatric Association (APA), introduced explicit diagnostic criteria for mental disorders, a multiaxial diagnostic assessment system that included exclusion criteria for the first time, and an overall approach that was atheoretical and agnostic with regards to the etiology of mental disorders. These revisions replaced the broad descriptions and psychodynamic formulations of mental disorders that were featured in earlier editions of the DSM. Earlier editions were criticized for lacking validity and reliability, where diagnostic descriptions were not grounded in empirical evidence and the likelihood for misdiagnosis was reportedly high (Surís et al., 2016). However, the advancements made by the DSM-III were not well received and were considered to be highly controversial at the time (Surís et al., 2016). Surís et al. (2016) argued that the operationalized diagnostic criteria featured in the DSM-III were introduced by the APA in an attempt to legitimize and "re-medicalize" the field of American psychiatry as a medical specialization.

Despite increased validity and reliability with regard to diagnosis, the medical model of diagnostic classification adopted by the DSM-III and its subsequent revisions has been widely criticized (Frazier et al., 2007; Hankin et al., 2005; Meehl, 1995). Since the introduction of the DSM-III, psychologists in particular have questioned whether psychiatric conditions should be diagnosed like physical conditions, such that a condition is either present or absent and a person is simply "disordered" or not (Meehl, 1995). Psychologists

have argued that the categorical model should be replaced with a dimensional one that examines the degree of psychopathology present. The "category versus continuum" issue has been widely discussed in the study of schizophrenia, psychosis, obsessive-compulsive disorder (OCD), attention deficit/hyperactivity disorder (ADHD), and depression (David, 2010; Frazier et al., 2007; Hankin et al., 2005; Lincoln, 2007; Meehl, 1995; Olatunji et al., 2008). For example, since the introduction of the DSM-III, depression has been portrayed as a qualitatively distinct disorder but some researchers have argued that depression may be best viewed as a "quantitative deviation from normal affective experience", (p. 96) suggesting a more integrated approach to diagnosis (Hankin et al., 2005)

The DSM-IV (published in 1994) and DSM-IV-TR (published in 2000) continued to utilize symptom-based diagnostic categories that were criticised for comorbid symptoms, uncertain boundaries, and "not otherwise specified" diagnoses (Philips, 2020). The DSM-5 (published in 2013) attempted to address some of these criticisms by introducing an integrative approach to the diagnosis and classification of disorders, such as autism spectrum disorder (ASD) and substance use disorder. In the case of ASD, four different categorical disorders from the DSM-IV-TR (i.e., autistic disorder, Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified) were conceptualized as occurring along a single continuum of behaviour. By combining these disorders, clinicians and researchers are able to assess levels of symptom acuteness as well as account for variations in symptoms from person to person (Philips, 2020). The latest edition of the DSM, the DSM-V-TR (published in March 2022), has reviewed and refined diagnostic criteria for many existing mental health disorders but has not included new integrative approaches to diagnosis beyond those introduced in the DSM-5.

The Category Versus Continuum Debate

The category versus continuum debate has been described by some as a "crude affair" that has developed into a contest between biomedical and psychosocial sciences to establish which approach has more validity (David, 2010). In fact, American psychologist Paul Meehl (1962), often credited as a major contributor to the continuum argument, did not set out to discredit the categorical argument altogether. Instead, motivated by the desire to understand what predisposed individuals to schizophrenia, Meehl used cognitive and behavioural continua to define the disease category called schizophrenia (Meehl, 1995). Ruscio and Ruscio (2008) have advised against simply assuming that all mental disorders fall on a continuum or that the DSM's categorical approach to diagnosis is outdated or inaccurate. Instead, latent structure should be treated as an empirical question that should be addressed for each mental disorder (Ruscio & Ruscio, 2008). A critical review of both approaches is presented here.

The Categorical Argument

The DSM's categorical approach to diagnosis relies on diagnostic criteria to determine the presence or absence of a mental disorder. Stakeholders have argued that a categorical approach to diagnosing mental disorders allows for simplicity in case findings and facilitates communication between professionals, although this may be at the expense of losing valuable information (Cohen, 1983; Meehl, 1995). In the case of psychosis, for example, diagnostic categorization has been considered helpful as it provides a clear understanding of whether a person is deluded or not, which informs decisions about clinical intervention as well as criminal or civil responsibility (Mullen, 2002). However, enforced categorization (e.g., dichotomizing continuous variables), in research for example, can cause a significant loss in variance that can result in an underestimation of effect size and a

reduction in statistical power (Cohen, 1983). These practices can have serious clinical implications for case conceptualizations and treatment planning.

It is not surprising that the developers of the DSM-II attempted to improve on earlier editions of the DSM by adopting the medical model of diagnostic classification. Their decision to categorize diagnoses may be rooted in the human tendency to make sense of the things in our environment by structuring them into groups or categorizing them. Essentially, the cognitive act of categorization aids in interpretation of the world as it helps us understand what something is and is not (Goldstone et al., 2018). However, categorization by humans is not always valid or accurate. This is demonstrated in a study that tested whether adults (e.g., undergraduate students and biology professors) shared the same difficulties as children in categorizing plants, animals, and moving artifacts as living or non-living things (Goldberg & Thompson-Schill, 2009). Results revealed that adults, including experts in the domain of biology, encountered greater difficulty (i.e., reduced accuracy and increased response times) ascribing life status to plants relative to all other objects. With this, a symptom-based categorical approach continues to be adopted by the latest edition of the DSM (i.e., DSM-V-TR, 2022) when diagnosing and conceptualizing mental health disorders.

The Continuum Argument

Supporters of the continuum approach have argued that constructs such as mental disorders should not be categorized like medical conditions, such as leukaemia or diabetes, that are differentiated as either present or absent. Instead, they have argued that mental disorders exist along a continuum where clinicians can gather meaningful information about the frequency and/or severity of a condition. Indeed, there has been preliminary support for the continuum approach, whereby constructs such as depression, psychopathy, and attachment (in both adults and infants) have been found to be dimensional in nature (Edens et al., 2006; Fraley & Waller, 1998; Fraley & Spieker, 2003; Hankin et al., 2005). For example,

in the case of attachment literature, decades of theory-testing had led researchers to believe that attachment behaviours were best conceptualized into four distinct categories or attachment styles (i.e., secure, avoidant, ambivalent, and disorganized). However, a more recent study has revealed that individual differences in attachment or attachment styles are not mutually exclusive but can be best conceptualized and measured in a dimensional fashion, regardless of specificity (e.g., mother vs. father) and type of relationship (e.g., parental, romantic) (Fraley et al., 2015).

According to supporters of the continuum argument, clinicians are better able to recognize individual differences when mental conditions are not dichotomized. When considering symptoms of psychosis, such as delusions, some researchers believe that a continuum approach to detecting and measuring delusions will not only aid in recognizing individual differences in delusions (e.g., type, frequency, intensity) but also aid in understanding how delusions may change over time (Mullen, 2002). These findings, which suggest that delusional conviction, distress, and preoccupation exist on a continuum with normal worries and concerns, have several important implications. For clinicians, a continuum approach will facilitate the development of meaningful screening tools and inform early intervention for psychosis (Mullen, 2002). Unlike a categorical approach, a continuum approach to assessment facilitates the early detection of psychosis by recognizing differences in psychotic symptoms between individuals as well as changes in psychotic symptoms across the course of a mental disorder for an individual (Mullen, 2002). For individuals struggling with psychosis, a continuum approach may mitigate against the stigma or alienating effect of being diagnosed with a psychiatric disorder. Essentially, a continuum approach to diagnosis and measurement may help a psychotic person understand that their symptoms exist on a continuum with normality, and they share much in common with other people (David, 2010; Mullen, 2002).

Further support for the continuum argument has been demonstrated in the development of the Research Domain Criteria project (RDoC) by the National Institute of Mental Health (NIMH) in 2008 (Cuthbert, 2014). The aim of the RDoC was to develop a framework for conducting research on psychiatric disorders that reflects advances in genetics, neuroscience, and behavioural science. It adopts a dimensional approach to the conceptualization of psychopathology that deviates from current categorical diagnostic systems to capture variation in mental health disorders and brain-behaviour associations. The RDoC framework is expected to foster new research that will lead to better diagnosis, intervention, and prevention for mental health conditions (Casey et al., 2014).

The Importance of Latent Structure Analysis

In order to understand why latent structure analysis is worth pursuing, the implications of differentiating categories from continua will be discussed within the field of clinical psychology. More specifically, the importance of obtaining structural knowledge about mental disorders will be considered for some of the major tasks faced by clinical psychologists working with individuals struggling with mental health issues. These tasks include clinical diagnosis, psychological assessment and treatment, and research.

Improves Diagnostic Accuracy

Diagnosis of mental disorders is of vital importance in clinical settings as it informs the type of treatment a person receives. Hankin et al. (2005) argued that latent structure analysis can refine and inform diagnostic classification which will not only ensure that a mental disorder is accurately diagnosed but will also have important implications for theory and clinical practice. Essentially, structural knowledge can help to improve diagnostic accuracy of categorical disorders by refining the diagnostic criteria that distinguishes normality from psychopathology (e.g., changes to the symptom list, subtypes, specifiers etc).

Latent structure analysis can also improve the diagnostic accuracy of disorders that are best conceptualized as continuous (Ruscio & Ruscio, 2008). For example, major depressive disorder (MDD) had long been considered to be categorical (i.e., a person is either depressed or not depressed) until more recent studies demonstrated otherwise (Hankin et al., 2005; Ruscio et al., 2007). In one study, latent structure analysis was used to identify a categorical boundary which enabled researchers to estimate the validity with which each diagnostic symptom featured in the DSM predicts a diagnosis of MDD (Ruscio et al., 2007). Researchers have argued that since some symptoms of MDD were found to be stronger predictors of the condition than others, diagnostic accuracy might be improved by assigning more weight to symptoms that are more powerful in predicting MDD instead of assigning equal weight to all symptoms (Ruscio & Ruscio, 2008).

Improves Psychological Assessment

According to Ruscio and Ruscio (2004) matching measurement models to the latent structure of a construct is essential in ensuring the validity and reliability of a psychological assessment. A measurement model that is based on dimensional scaling will use an individual's score to position them along a continuum, while a measurement model that is based on categories or taxa will assign individuals to groups (Ruscio & Ruscio, 2008). When a construct's latent structure is not used to guide the selection of an appropriate assessment tool, measurement error could occur. More specifically, using categorical tools that force dimensional traits into groups can cause valuable information to be lost (Cohen, 1983). Likewise, scaling categorical constructs along dimensional distributions can make it difficult to select an appropriate cut-off score that will influence diagnosis and treatment (Ruscio & Ruscio, 2002; Ruscio & Ruscio, 2004).

In personality psychology, there has been debate over the validity and reliability of personality classifications (e.g., the Big Five) which has highlighted the need for latent

structure analysis (Masyn, et al., 2010). According to Ruscio and Ruscio (2008), an example of a personality assessment tool that could benefit from latent structure analysis is the Myers-Briggs Type Indicator (MBTI). The MBTI is a self-report questionnaire that divides personality into 16 categories by dichotomizing each of the four-dimensional scores generated by the MBTI (i.e., extraversion-introversion, sensing-intuiting, thinking-feeling, judging-perceiving). The MBTI is commonly used to assess how people see the world and results are often used to inform study and career decision-making. Despite its popularity, the MBTI has been criticized for its weak psychometric properties (Bess & Harvey, 2002). More specifically, it has been argued that uncovering personality's true latent structure and establishing whether or not MBTI scores should be dichotomized, or if the measure should retain its dimensional structure, will improve the validity and helpfulness of test results (Rsucio & Ruscio, 2008).

Despite longstanding debates over the superiority of one conceptual approach over the other, Moreland and Dumas (2008) found comparable results when they assessed both categorical and dimensional approaches to measuring disruptive behaviour in children between 2 and 7 years old. The authors attributed their results to the complimentary nature of both approaches (categorical versus dimensional) and how they can both be employed in the assessment of young children who exhibit disruptive behaviour.

Informs Psychological Intervention

Psychological intervention is tied closely to psychological assessment and diagnosis. Thus, if latent structure analysis is likely to benefit assessment and diagnosis, then it is also likely to improve psychological intervention. Research suggests that when it comes to categorically defined mental health disorders, comorbidity is the rule rather than the exception (Hankin et al., 2016). Hence, latent structure analysis can be used to inform psychological intervention by examining factor structures and identifying patterns of

comorbidity associated with the involved disorders. For example, generalized anxiety disorder (GAD) and major depressive disorder (MDD) are considered to have significant symptom overlap, high levels of co-occurrence, and similar treatment approaches (Blanco et al., 2014). However, latent structure analysis revealed that GAD and MDD are related but different disorders and that certain treatment approaches for GAD (e.g., benzodiazepines) may not be efficacious for MDD (Blanco et al., 2014).

Likewise for complex conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD), understanding the latent structure of this condition could inform important treatment decisions about whether medication or psychotherapy would be more suitable to treat a specific ADHD taxon (Frazier et al., 2007). Overall, this could ultimately save valuable time and resources for clinicians working with individuals with mental health conditions.

Implications for Research Design

The accurate identification of the latent structure of a mental disorder has also been found to have important implications for research design (Ruscio & Ruscio, 2002; Ruscio & Ruscio, 2004). Suitable research designs can be selected based on the latent structure of a construct. More specifically, group-comparison designs have been found to be more appropriate for categorical variables, whereas correlational designs have been more suitable for understanding nonlinear relationships between continuous variables (Ruscio & Ruscio, 2002). Accordingly, mental disorders with more complex latent structures (i.e., a combination of categories and dimensions) will require more complex research designs. Ruscio and Ruscio (2004) illustrate how latent structure can influence research design using the example of social phobia. Here, if a reliable dimensional variation is found within normally shy and socially phobic taxa, both group comparison and correlational designs could be employed. To facilitate meaningful investigation, they argue that careful sampling should take place and

that participants with a range of severity levels are selected from both taxa (Ruscio & Ruscio, 2004).

Methods for Determining Latent Structure

In the field of psychology there are conflicting views about the types of statistical methods that should be used to determine the latent structure of a psychological construct (Fossati et al., 2005; Meehl, 1995; Ruscio & Ruscio, 2002). Although many researchers advocate strongly for the use of the taxometric method when it comes to latent structure analysis (Ruscio & Ruscio, 2002), other statistical approaches have also been found to be effective in understanding the latent structure of psychological constructs (Masyn et al., 2010). The advantages and the limitations of the taxometric method and its statistical alternatives will be reviewed here. As there are numerous alternative procedures, these alternatives will be discussed collectively as "other statistical procedures". For a full review of these procedures and their limitations, please refer to Ruscio and Ruscio (2002).

The Taxometric Method

The taxometric method or taxometrics is a series of sophisticated statistical procedures used to uncover the latent structure of psychological constructs, such as mental disorders (Meehl, 1995). Many researchers have more recently turned to structure uncovering methods, such as the taxometric method developed by Paul Meehl and colleagues (Meehl, 1995; Meehl & Yonce, 1994; Waller & Meehl, 1998), following unsuccessful attempts to answer questions about the latent structure of a construct using more traditional statistical methods, such as cluster analysis (Fraley & Waller, 1998). According to Meehl (1995), taxometrics attempts to "carve nature at its joints (Plato)" or reveal a construct's underlying structure rather than to force a structure onto the data. Statistical procedures such as mean above minus below a cut (MAMBAC; Meehl & Yonce, 1994), MAXCOV-HITMAX (Meehl,

1973), and L-Mode (Waller & Meehl, 1998) have been developed by Meehl and colleagues to distinguish between taxonic (i.e., categorical) and nontaxonic (i.e., dimensional) structures.

Taxometric statistical procedures are based on the principles of coherent cut kinetics that involve searching for orderly statistical relations between one or more variables along sliding intervals, or cuts, of one another. Each procedure uses manifest indicators, that are described as "fallible" but nonredundant, to search for a qualitative boundary between two latent taxa (Meehl, 1995). This is achieved by graphing statistical summaries of indicator interrelations and subsequently using these graphs to estimate critical parameters (Olatunji et al., 2008). According to Ruscio and Ruscio (2002), the taxometric method establishes latent structure by relying on the convergence of evidence obtained from multiple quasi-independent procedures rather than traditional null hypothesis significance tests. Taxometric analysis has been successfully applied in the psychological domains of infant attachment, obsessive-compulsive symptoms, depression, and dissociation (Fraley & Spieker, 2003; Hankin et al., 2005; Olatunji et al., 2008; Waller et al., 1996).

However, results from taxometric analyses have not always been clear-cut or helpful in making definitive conclusions about psychological constructs. When taxometric procedures were used to uncover the latent structure of Attention-Deficit/Hyperactivity Disorder (ADHD), results suggested that the core symptoms of ADHD may be best represented by a dimensional, not categorical, structure (Frazier et al., 2007). However, Frazier et al. (2007) cautioned against mistaking the absence of taxonic findings as strong evidence for dimensionality. More specifically, Frazier et al. (2007) acknowledged that there are limitations to any taxometric analysis, which in this specific instance include misspecification or poor validity of ADHD indicators chosen for the study. A study investigating the latent structure of narcissistic personality disorder (NPD) also yielded unclear results (Fossati et al., 2005). Fossati et al. (2005) claimed their taxometric analysis

supported the typological description of NPD although there has been empirical support for the dimensional nature of NPD that ranges from normal assertiveness to pathological narcissism (Emmons, 1987). In the same study, results from confirmatory factor analysis (CFA) and exploratory factor analysis (EFA) suggested the existence of two distinct clusters of narcissistic features, unlike the single latent trait of NPD suggested by the taxometric analysis.

Other Statistical Procedures

There are many other statistical procedures that can be used to determine the latent structure of a psychological construct. More frequently mentioned traditional procedures include cluster analysis (Sneath & Sokal, 1973), mixture models (De Boeck et al., 2005), and factor mixture models (Lubke & Neale, 2006). However, Ruscio and Ruscio (2002) have argued that none of these procedures are as effective as Meehl's taxometric method for empirically distinguishing latent taxa from dimensions (See Ruscio & Ruscio, 2002 for a full review of statistical alternatives to the taxometric method). This is because each of these methods have their own limitations which makes it hard to definitively answer questions about the latent structure of psychological constructs, such as mental disorders (Ruscio & Ruscio, 2002).

The Need for a Definition

Based on the literature reviewed here, it is clear that statistical methods do not always answer all the questions that researchers might have about the latent structure of a psychological construct. This could be because psychological conditions are extremely complex and difficult to conceptualize. One of the challenges to understanding the latent structure of such constructs is that there may be too many intercorrelated dimensions (David, 2010). For example, in case of the Difficulties in Emotional Regulation Scale (DERS; Gratz & Roemer, 2004), there has been debate over whether some of the dimensions that define

emotional regulation difficulties (e.g., awareness) are as important as others (e.g., nonacceptance, goals, impulse, strategies, and clarity) (Bardeen et al., 2012). There has been similar debate over conditions like psychosis, whereby delusions can be measured on more than 10 different dimensions (e.g., conviction, preoccupation, distress, absurdity, self-evidentness, and pervasiveness). Researchers have found it challenging to establish which aspects or dimensions of delusions are important or how to weigh the importance of one dimension against another (David, 2010). Although it will not resolve all the challenges faced by latent structure analysis, it is reasonable to suggest that clearly defining a construct will facilitate discussions among clinicians and researchers when it comes to establishing latent structure (Mullen, 2003). It might therefore be worthwhile to first address any inadequacies in a construct's definition and ensure validity and reliability before proceeding with the sophisticated statistical methods outlined here.

Chapter Conclusion

Latent structure analysis emerged in the twentieth century to assist researchers and clinicians in making meaningful inferences about latent constructs that cannot be observed or measured. Using a series of sophisticated statistical procedures, latent structure analysis has been used to establish whether many psychological constructs (e.g., disruptive behaviour, attachment, intelligence, mental disorders) are categorical, continuous, or a combination of the two. The introduction of latent structural analysis has also given rise to the "category versus continuum" debate that has also been referred to as a contest between biomedical and psychosocial sciences to establish which conceptual approach is more suitable when diagnosing mental disorders (David, 2010). Rather than assuming a one-size-fits-all approach to diagnosis, it has been suggested that latent structure be treated as an empirical question to be addressed for each mental disorder (Ruscio & Ruscio, 2008). Establishing the latent structure of mental disorders and other latent psychological constructs has had some

important implications for researchers and clinicians. More specifically, acquiring structural knowledge is believed to improve diagnostic accuracy and inform psychological assessment and treatment planning, as well as influencing research design.

Rather than applying more traditional statistical procedures (e.g., cluster analysis, latent class analysis) that have reportedly forced a structure onto the data, the literature has highlighted a clear preference for taxometrics, a structure uncovering method, that has been used to uncover the true underlying nature of a construct (Meehl, 1995; Ruscio & Ruscio, 2008). However, when it comes to psychological constructs such as mental disorders, sophisticated statistical procedures have not always been able to reliably answer all questions about latent structure (David, 2010). This is largely because psychological constructs can be complex and challenging to conceptualize. Thus, to potentially improve latent structure analysis outcomes, it has been suggested that researchers should first address any definitional inadequacies to ensure the validity and reliability of a psychological construct's definition before proceeding with statistical methods (Mullen, 2003). This being so, the need to establish a valid and reliable definition for childhood emotional dysregulation is further discussed in the next chapter.

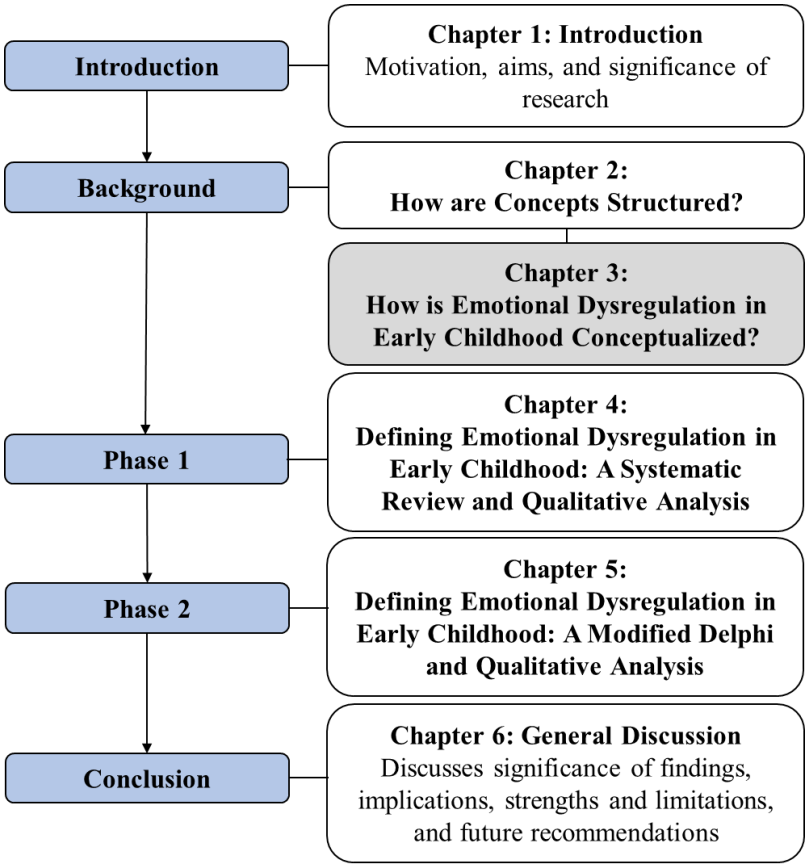
Chapter 3:

Review of Emotional Dysregulation in Early Childhood

Chapter 3 identifies definitional inadequacies and highlights the need for a clear definition to facilitate the accurate detection and measurement of emotional dysregulation in early childhood (i.e., 0-8 years). Definitional inadequacies are identified by reviewing how childhood emotional dysregulation is conceptualized (i.e., risk factors, protective factors, and consequences), treated, and measured. Recommendations for future research and its implications for research and clinical practice are also discussed.

Figure 3.1

Scope of Thesis



Difficulties Detecting and Measuring Childhood Emotional Dysregulation

Children who face difficulties independently regulating their emotions are commonly labelled by mental health professionals as being "emotionally dysregulated" (Keenan, 2000; Thompson, 1994). Emotional dysregulation generally suggests deficits in emotional control, altering a person's experience and expression of both positive and negative emotions. In young children, emotional dysregulation often manifests as irritability, aggression and self-injurious behaviour, which has been associated with several long-term negative outcomes (Herndon et al, 2013; Keenan, 2000). These include child adjustment difficulties (Herdon et al., 2013), elevated parental stress levels (Chan & Neece; 2018), and the development of psychopathology in adulthood (Crowell et al., 2015; Keenan, 2000). To ensure that children receive the timely intervention that they need, detecting and measuring emotional dysregulation in young children accurately and reliably is essential.

Chronic emotional dysregulation in early childhood has been described as a condition that "defies our current diagnostic system" as it is not formally classified as a mental health disorder by The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (Althoff, 2010). As a result, accurately identifying and measuring emotional dysregulation in young children has brought many challenges. Specifically, researchers have considered whether common childhood behaviours (e.g., attention seeking behaviour or throwing a tantrum to achieve a desired outcome) warrant the extreme label of "dysregulation" (Keenan, 2000). The term "emotional dysregulation" has been applied in a variety of settings (e.g., psychiatric, educational) and is commonly used to describe both children and adults who experience chronic difficulties managing their emotions (Keenan, 2000; Thompson, 1994). Concerns about the labels we give our children have emerged from arguments that developmentally appropriate childhood behaviours have been misdiagnosed and

inappropriately pathologized by mental health professionals (Barbosa & Leite, 2020; Krieger & Stringaris, 2013).

The accurate detection and measurement of childhood emotional dysregulation is further complicated by a lack of consensus over which conceptual approach to assessment (i.e., continuous vs. categorical) is most suitable. Some researchers have viewed emotional dysregulation in early childhood as a continuous construct and have used measures of emotional regulation to quantify emotional dysregulation as synonymous with low emotional regulation (Shields & Cicchetti, 1997). Other researchers have argued that emotional dysregulation in early childhood is a categorical construct (i.e., where emotional regulation and emotional dysregulation are two separate and distinct phenomena) that warrants its own assessment tool (Samson et al., 2014).

Collectively, these concerns are too important to be ignored and warrant further investigation into how emotional dysregulation in young children is conceptualized by professionals (Faraone et al., 2019). For the current purposes, this is achieved by reviewing the scholarly literature on: a) how emotional dysregulation in children develops and is commonly treated; b) how emotional dysregulation "defies our current diagnostic system" and is distinguished from other childhood disorders; and c) how emotional dysregulation in early childhood is detected and measured.

The Conceptualization of Childhood Emotional Dysregulation

Mental health professionals were first introduced to the concept of emotional dysregulation in the 1980s. At that time, it became the target of Dialectical Behavior Therapy (DBT), a psychological treatment approach developed by Marsha Linehan (1993) for adolescents and adults who are highly suicidal or have been diagnosed with borderline personality disorder (BPD). DBT was developed on the premise that both suicidal behaviour and BPD are disorders of emotional dysregulation and the result of a dysfunctional affective

regulation system (Linehan, 1993). Emotional dysregulation is considered a key feature of BPD, a serious mental health condition that is typically diagnosed in early adulthood. According to Linehan and colleagues' (2007) theoretical work on the development of BPD, emotional dysregulation is broadly defined as the "inability to regulate emotional cues, experiences, actions, verbal responses, and nonverbal expressions under normative conditions" (p. 583). According to this perspective, emotional dysregulation is pervasive and occurs across a wide range of emotions, adaptation problems, and situational contexts.

Since the emergence of the term in the BPD and DBT literature, emotional dysregulation has been used by clinicians and researchers to describe the behaviour of both children and adults who experience difficulties managing their emotions (Keenan, 2000; Thompson, 1994). For young children, emotional dysregulation or emotional regulation difficulties are often associated with frequent tantrums and aggressive behaviour (Keenan, 2000). Arguably, such behaviours are developmentally appropriate for young children faced with intense emotions, thus raising concerns about mental health professionals misdiagnosing and pathologizing children (Barbosa & Leite, 2020; Krieger & Stringaris, 2013). To establish whether the label of emotional dysregulation is warranted, and a child is indeed struggling with emotional regulation, it is essential to first understand how emotional dysregulation develops across the lifespan. This includes identifying when a person is old enough to independently regulate his or her emotions and when difficulties with emotional regulation are likely to occur.

Emotional Development and Emotional Dysregulation

In what has been referred to as an affect revolution, emotional regulation has received an overwhelming amount of scholarly attention over the past two decades (Adrian et al., 2011). Extensive research in the area of emotional regulation has revealed that emotions can be regulated in a wide variety of ways. As a result, there is a lack of consensus about how

emotional regulation should be defined and conceptualized (Adrian et al., 2011; Dodge & Garber, 2006; Gyurak et al., 2011). One conceptualization of emotional regulation has highlighted the involvement of intrinsic (self) and extrinsic (environmental) factors in modulating emotional responses (Cicchetti et al., 2006; Thompson, 1994). Here, emotional regulation has been defined as "the intra- and extraorganismic factors by which emotional arousal is redirected, controlled, modulated, and modified to enable an individual to function adaptively in emotionally arousing situations" (Cicchetti et al., 2006, p. 15).

Other conceptualizations, such as Gross's (1998) process model of emotion, have highlighted the involvement of antecedent-focused and response-focused strategies in the regulation of emotions. Antecedent-focused emotion regulation refers to manipulating input (emotional cues) and managing emotions even before they are triggered. This is achieved through strategies such as situation selection (i.e., avoiding or approaching people or situations based on their emotional impact), situation modification (i.e., environmental modification to alter emotional impact), attention deployment (i.e., turning attention towards or away from something to influence one's emotions), and cognitive change (i.e., reevaluation of one's situation of one's ability to cope with a situation). Response-focused emotional regulation, on the other hand, refers to manipulating output (emotional responses) or suppressing emotional response tendencies once the emotion has been triggered (Gross, 1998).

Most conceptualizations of emotional regulation have focused on explicit (effortful) attempts to modify emotional responses. Explicit emotional regulation refers to processes, such as those featured in Gross's (1998) process model of emotion, that require conscious effort, demand some level of monitoring, and are associated with some level of insight and awareness (Gyurak et al., 2011) However, a growing body of research suggests that emotional regulation can also be implicit (automatic) in nature (Gyurak et al., 2011). Implicit

emotional regulation refers to processes that are evoked automatically, where explicit strategies may become more implicit or habitual over time (Gross & John, 2003). For example, a person may engage in cognitive change or reappraisal to remind themself not to take their boss's comments personally (effortful) but may find themself engaging in this reappraisal with very little awareness over time (automatic). The dual process framework for emotional regulation integrates explicit and implicit processes and highlights how both forms of emotional regulation are necessary for emotional wellbeing (Gyurak et al., 2011).

Based on the conceptualizations discussed here, emotional regulation generally involves: (a) emotional awareness and understanding; (b) emotional acceptance; (c) the application of appropriate strategies to manage emotional responses; and (d) the ability to manage impulsive behaviours and behave in accordance with desired goals when faced with intense emotions (Gratz & Roemer, 2004; Southam-Gerow & Kendall, 2001). Researchers have suggested that the absence of any or all of these abilities indicates difficulties with emotional regulation or emotional dysregulation (Gratz & Roemer, 2004). However, some of the abilities mentioned in this definition (e.g., emotional awareness and understanding, emotional acceptance) are likely to be absent in early childhood (i.e., 0-8 years) as they do not develop until adulthood (Braet et al., 2014; Thompson, 1994). There is therefore a need to understand how emotional dysregulation is likely to differ for young children who lack the skills necessary to independently regulate their emotions. According to Crowell and colleagues (2015), when emotional dysregulation is transient, it can manifest as acute symptoms of anxiety, emotional distress, or withdrawal. If emotional dysregulation is chronic over time, it is believed to result in psychopathology, such as depression and anxiety disorders (Crowell et al., 2015; Keenan, 2000).

Research on the development of emotional regulation across the lifespan has focused largely on the transition from extrinsic (environment) to intrinsic (self) processes of

emotional regulation (Thompson, 1994). This “transfer of control” is believed to occur within the context of the infant-caregiver relationship in the first three years of a child’s life (Dodge & Garber, 2006). In the first three months after birth, emotional regulation is rooted in the attainment of physiological homeostasis or equilibrium (Cicchetti et al., 2006). Changes in an infant’s arousal level, due to hunger or physical discomfort for example, generate homeostatic tension causing a state of disequilibrium. At birth, an infant is equipped with some reflexes or cues, such as crying, to communicate their needs to those in their immediate environment and counter the effects of homeostatic tension (Cicchetti et al., 2006). Emotional regulation at this stage is largely extrinsic and dependent on the caregiver’s ability to effectively read a baby’s cues and apply the appropriate strategies to reduce internal tension (Cicchetti et al., 2006; Thompson, 1994).

With the establishment of physiological homeostasis, infants between four and nine months of age may start to turn their attention towards their social surroundings. At this stage, cognitive advancement enables an infant’s emotional expression to become more refined and in tune with the emotions of their caregivers through imitation. During this time, caregivers may catch a first glimpse of their child’s “social” smile, which is anecdotally said to be made with the purpose of engaging adults and keeping them close by. Emotional regulation at this stage remains largely extrinsic in nature and caregiver dependent. However, through socialization, infants may develop some understanding of emotional self-management when caregivers reinforce the expression of some emotions (e.g., smiling when happy) and discourage the expression of others (e.g., crying when upset or anxious) (Cicchetti et al., 2006). Another developmental milestone in the first year of life is the development of a secure attachment relationship with the primary caregiver (Carlson & Sroufe, 1995; Sroufe, 1979). With a secure attachment and responsive caregiving, emotional

regulation becomes “familiar and anticipated” as infants expect to be soothed by caregivers during times of emotional and physiological arousal (Cicchetti et al., 2006).

Following the first year of life, the toddler and preschool years are marked by significant developments in intrinsic emotional regulation (Thompson, 1994). Researchers believe that these developments are due to the acquisition of a sense of self and the growth of linguistic skills (Cicchetti et al., 2006; Thompson, 1994). More specifically, with the development of a sense of self, representational skills related to emotions may start to emerge and form a basis of meta-emotive understanding or knowledge of emotional processes (Thompson, 1990). For example, young children will start to understand antecedents of emotion or the associations between specific situations and the emotions they evoke. Children may also start to develop a basic awareness and understanding of how emotional arousal manifests physically, such as crying when they are sad and smiling or laughing when they are happy (Thompson, 1994). Additionally, with the concurrent development of speech and language, children are able to deliver and understand verbal information regarding emotions and emotional regulation strategies. For example, children are able to tell their parents how they are feeling (e.g., “I am feeling sad”) and their understanding of emotions and emotional regulation is further shaped through modeling or verbal instruction from parents (e.g., “it’s OK, let’s take a deep breath and try again”).

Based on the emotional regulation literature reviewed here, the “transfer of control” from parent to child and the development of emotional self-regulatory capacities (intrinsic emotional regulation) have been found to occur between the first two to three years of life (Cicchetti et al., 2006; Thompson, 1994). Compared with newborns, toddlers and preschoolers are better equipped to manage emotional arousal using strategies that are often learned from caregivers (e.g., imitation, modeling, reinforcement). However, based on the literature, once a child reaches preschool age, caregivers are not completely omitted from the

emotional regulation process. As preschoolers' emotional awareness and understanding continue to develop into adulthood (by which time they are presumably able to independently regulate their emotions), young children through to their teenage years have been found to benefit from enlisting the help of adults when faced with intense emotional arousal (Braet et al., 2014; Thompson, 1994). As such, the development of emotional regulation across the lifespan depends on the complex interaction between intrinsic and extrinsic factors. Naturally, with this complex transaction, many factors could potentially hinder the development of emotional regulation in young children, putting them at risk of developing emotional dysregulation.

Risk Factors

For many years, research has explored the relationship between individual differences in children, such as temperamental characteristics, and later socioemotional functioning (Bates et al., 1985; Kochanska, 1995). The individual differences perspective argues that stable, biologically-based traits in infancy, such as impulsivity, attentional difficulties and irritability, could later predict behavioural and emotional problems in preschool years (Campbell et al., 2000). However, this is not always the case as not all difficult infants become problematic preschoolers. Hence, studies have found support for a transactional model that takes into account individual differences, such as a child's temperament, as well as contextual factors, such as parenting behaviour (NICHD Early Child Care Research Network, 2004).

Babies described as having difficult temperaments in the first year of life are believed to be at greater risk of developing emotional dysregulation in childhood (Keenan, 2000). Babies' difficult temperaments have been determined based on high scores on the Infant Fussy/Demandingness Scale that assesses an infant's "frequency and intensity of crying and fussing" and "need for attention" (Martin et al., 1997). Indeed, certain temperamental traits

such as impulsivity, attentional difficulties and irritability have been associated with increased levels of emotional and behavioural difficulties later in life (Thomas & Chess, 1977). This could be because difficult temperamental traits may elicit negative interactions with caregivers, which may subsequently lead to psychopathology (Keenan, 2000).

Temperament has been defined by researchers as individual differences in a child's emotions, activity levels, attention, and ability to regulate these differences. Temperament is believed to have a biological basis, but is subject to experience and maturation, and is closely related to the concept of personality (Caspi & Shiner, 2008). Preterm infants are also believed to be at higher risk of emotional dysregulation as they have been found to be more irritable and easily overstimulated than full-term infants (Keenan, 2000). Other researchers believe that vulnerability to emotional dysregulation may occur before birth, and fetal exposure to maternal stress hormones may have an impact on behavioural and biological functioning, such as the ability to regulate emotions (Davis & Thompson, 2014).

In terms of contextual factors, emotional dysregulation in young children has been found to be most apparent in the absence or unavailability of a child's primary, most familiar caregiver (Field, 1994). Here, caregiver unavailability includes both physical unavailability (e.g., during separations) and emotional unavailability (e.g., when a caregiver experiences a depressive episode). During periods of caregiver unavailability, children are deprived of their co-regulators and experience behavioural and physiological disorganization when faced with emotional arousal (Field, 1994). This is distressing for children as they are left to rely on their own resources without the guidance of a primary caregiver to help them to regulate their emotions. Similarly, attachment researchers argue that emotional dysregulation is the result of an insecure attachment style, which is characterized by a lack of parental responsiveness to a child's emotional needs, psychological unavailability when a child is distressed, and unpredictable support (Brumariu, 2015). Emotional dysregulation subsequently becomes

pervasive when internal "working models" (i.e., mental representations of the self and others) about emotional responsiveness from others is generalized from the parent-child relationship to other relationships (e.g., friendships, romantic relationships).

The risk for the development of emotional dysregulation in young children has also been associated with the goodness of fit between a parent and a child (Thomas & Chess, 1977). When a mismatch occurs between the temperaments of a mother and her child, lack of attunement within the parent-child relationship could hinder co-regulation efforts and the child's development of independent emotional regulation skills. For example, a mother who is more vocal and gregarious is hypothesized to be better able to identify and respond to the emotional needs of a child than a mother who is withdrawn and inactive (Field, 2014). Children who have experienced trauma or who have caregivers who have experienced trauma have also been found to be at higher risk of the development of emotional dysregulation in childhood (Keeshin et al., 2021; Pat-Horenczyk et al., 2015). For children exposed to traumatic events, emotional dysregulation has been observed at up to twice the rate of healthy controls (Dvir et al., 2014). A study comparing emotional regulation in maltreated and non-maltreated preschoolers found that trauma exposure was associated with two patterns of emotional dysregulation, namely "undercontrolled/ambivalent" and "overcontrolled/unresponsive" as measured by person-oriented emotion regulation patterns (Maughan & Cicchetti, 2002).

Childhood traumatization refers to exposure to serious adverse childhood experiences, such as neglect, abandonment, sexual or physical abuse, or having a mentally ill parent (Thompson, 2019). A mother's exposure to trauma, on the other hand, may inhibit her own emotional regulation capabilities as well as her ability to provide comfort, soothing, and modelling of emotional regulation, ultimately increasing the risk of emotional dysregulation in her child (Pat-Horenczyk et al., 2013). Other risk factors for emotional dysregulation in

children have included non-supportive parental practices, such as minimizing or punishing a child's emotional expressions or living in an emotionally invalidating environment (Thompson, 2019), intrusive parenting (Chan & Neece, 2018), intimate partner violence (Zarling et al., 2013), and exposure to violence in the community (Röll et al., 2012).

Protective Factors

However, several factors have been found to protect young children from the development of emotional dysregulation. Considerable scholarly attention has been paid to the role of the caregiver-child relationship and how it reduces the risk of the development of emotional dysregulation in young children (NICHD Early Child Care Research Network, 2004; Pat-Horenczyk et al., 2015). According to researchers, the ability to regulate emotions in infancy is a quality of the caregiver-child relationship rather than a quality of the infant alone (NICHD Early Child Care Research Network, 2004). In the first three years of life, children learn how to regulate their emotions from their caregivers (Sroufe, 1979; 1995). This is often referred to as co-regulation or mutual regulation, where children learn through warm and responsive interactions with caregivers how to cope effectively with intense emotions and down-regulate difficult emotional experiences appropriately (Pat-Horenczyk et al., 2015). Therefore, emotional regulation in infants who display certain temperamental characteristics (e.g., emotional reactivity) may be improved over time within the context of highly responsive parenting (Crowell et al., 2015). For parents to be in a position to co-regulate, they must be able to regulate their own emotions and manage any stress incurred by their parental role (Williford et al., 2007). Thus, parental training and stress reduction techniques, such as Mindfulness Based Stress Reduction (MBSR), have been found to produce a more emotionally favourable environment for caregiver-child interactions and curb the development of emotional dysregulation in children (Chan & Neece, 2018).

In addition to parental co-regulation, child effortful control has also been found to mitigate the risk of emotional dysregulation developing in young children. A Turkish study conducted with 118 preschoolers found effortful control to be associated with lower levels of emotional dysregulation but unrelated to emotional regulation, lending support to the categorical argument that childhood emotional dysregulation could be discrete from emotional regulation (Orta et al., 2013). Here, effortful control is viewed as an inner resource that enables the focusing and shifting of attention, inhibiting or activating behaviours in situationally appropriate ways that should assist emotional regulation. According to Orta and colleagues (2013), findings from this study suggest that effortful control is associated with a child's ability to regulate the intensity of emotional arousal but is not associated with emotional awareness, ability to transition easily between activities, or the expression of contextually appropriate emotional responses (Orta et al., 2013). Based on the literature reviewed here, the development of emotional dysregulation in early childhood can be perplexing. However, the consequences and outcomes associated with childhood emotional dysregulation make this topic too important to be ignored.

Consequences

Emotional dysregulation in early childhood has been associated with a multitude of emotional and behavioural difficulties across the lifespan (Crowell et al., 2015; Keenan, 2000). Children who display frequent emotional dysregulation are at risk of the development of adjustment difficulties, including behaviour problems and difficulties with social interaction (Blair et al., 2004; Herdon et al., 2013). Emotional dysregulation in children has been theorized to be a risk factor for behaviour problems, such as early onset aggression (Ettekal & Ladd, 2019; Röll et al., 2012). More specifically, emotionally dysregulated children are believed to respond to emotionally laden situations (e.g., a peer snatching a toy) with aggressive behaviour, such as hitting, kicking, shoving, knocking over, or throwing

objects. In some instances, there may even be displays of unprovoked interpersonal aggression (Herndon et al., 2013). Children who found it difficult to regulate their emotions and displayed behavioural problems were rated to have fewer social skills, experienced more peer rejection, and engaged in more peer conflict than children who did not experience emotional dysregulation (Eisenberg et al., 1993; Miller et al., 2004). Emotional dysregulation in children is also believed to affect social interactions with teachers, as children who frequently throw tantrums, are aggressive or have difficulties calming themselves in class will likely receive more negative attention and disciplinary action from teachers (Miller at al., 2004).

Research has also found that emotional dysregulation in children can have an impact on caregivers. Parenting stress has been associated with emotional dysregulation in children, where parents with children who experience emotional regulation difficulties have reported higher levels of stress than parents of children who do not experience emotional regulation difficulties (Chan & Neece, 2018; Williford et al., 2007). However, the effects of parental stress could be bidirectional, where elevated levels of parental stress could place a child at higher risk for the development of emotional dysregulation (e.g., fetal exposure to maternal stress hormones) and a child's difficulties with emotional regulation (e.g., aggressive behaviour, tantrums) could increase a parent's risk for elevated stress levels (Chan & Neece; 2018; Davis & Thompson, 2014).

Furthermore, children do not appear to simply grow out of emotional dysregulation. A considerable amount of evidence supports the link between emotional dysregulation in childhood and psychopathology in adolescence and adulthood. Specifically, childhood emotional dysregulation has been associated with mood disorders such as anxiety and depression (Folk et al., 2014; Hoffmann et al., 2012), BPD and self-harming behaviour (Crowell et al., 2009; Crowell et al., 2005), and alcohol-related problems and substance use

disorders (Messman-Moore & Ward, 2014; Tull et al., 2015) as well as anti-social behaviour (Okado & Bierman, 2015). According to researchers, clinically significant emotional dysregulation is "a problem that emerges in childhood, potentiates psychopathology by adolescence, and worsens in adulthood" (Crowell et al., 2015, p. 92). This is further supported by research in the field of developmental psychology that suggests that deviations from normative pathways (e.g., co-regulation and eventual independent emotional regulation) increase the risk for the later development of mental health difficulties (Sroufe, 1997).

Treating Emotional Dysregulation

Emotionally dysregulated children often experience overwhelming symptoms that can cause them significant distress and functional impairment (Blair et al., 2004; Herdon et al., 2013). More specifically, children who are emotionally dysregulated often exhibit challenging behaviour, such as aggression, that could impact their academic and social development (e.g., paying attention in class and sustaining friendships). Managing emotionally dysregulated children can also cause significant parental stress, creating strained relationships at home (Chan & Neece, 2018). It is therefore crucial that children who experience emotional dysregulation and their families receive the intervention that they need. Empirical studies that have assessed the treatment outcomes of emotional dysregulation in young children have been limited. Thus, evidence-based treatment approaches that have targeted emotional dysregulation in children and adolescents will be discussed here. These include Dialectical Behavior Therapy (DBT) for adolescents, Trauma-Focused Cognitive Behaviour Therapy (TF-CBT), Mindfulness Based Stress Reduction (MBSR) for parents and The Incredible Years Teacher Classroom Management Program (IY TCM) for educators.

Dialectical Behaviour Therapy

Dialectical Behaviour Therapy (DBT) was initially developed to treat emotional dysregulation in adolescents and adults who have been diagnosed with borderline personality

disorder (BPD) or who exhibit chronic suicidal behaviour (Linehan, 1993) by addressing deficits in emotional regulation. More recently, improvements in emotional dysregulation, depression, anxiety and stress were recorded when DBT was adapted to a group of adolescents who exhibited deficits in emotional regulation but did not meet the criteria for BPD (Gill et al., 2018).

In that study, 12 adolescents (three males, nine females) between 12 and 17 years (M = 15.5 years old, SD = 1.6) were invited to participate in a 6-month modified DBT program. At the time of recruitment, participants were receiving outpatient treatment for various mental health conditions. They were referred to the program by their treating psychologists if there were concerns about managing emotions. The program consisted of four modules (emotional regulation, walking the middle path, distress tolerance, interpersonal effectiveness) adapted from the original DBT program (Linehan, 1993). Parents of participants were also invited to take part in the caregiver/parent program to enhance their ability to respond to their child's emotional difficulties in a helpful way as well as improve their own emotional regulation. Unlike the original DBT program that targets the individual, developers of this modified DBT program opted to include a caregiver/parent program as they believe that parental or caregiver involvement will enhance treatment outcomes for adolescents (Gill et al., 2018). The parent program also acknowledges the role of the family environment, as highlighted in the biosocial theory of BPD (Linehan, 1993), in the development of emotional dysregulation.

Group outcomes were monitored using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), a self-report measure of emotional dysregulation, and the Depression, Anxiety, Stress Scale (DASS; Lovibond & Lovibond, 1995), a 21-item self-report scale used to measure symptoms of depression, anxiety, and stress. Although adolescent participants were originally referred to the program for difficulties with emotional

regulation, DERS pre-test scores were found to be relatively low when compared to a community sample (Gill et al., 2018). Authors hypothesized that low scores could be the result of the DERS requiring a certain amount of introspection regarding ones' own regulatory capabilities, which could be lacking in severely disordered adolescents (Gill et al., 2018). Nevertheless, program outcomes demonstrated that the adolescent skills-based program administered in conjunction with a caregiver/parent group was effective in teaching adolescents how to better regulate their emotions and reduced levels of emotional dysregulation, as measured by the DERS.

Trauma-Focused Cognitive Behaviour Therapy

Evidence-based trauma treatments, such as trauma-focused cognitive behaviour therapy (TF-CBT) and alternatives-for-families cognitive behaviour therapy (AF-CBT), have been found to effectively treat emotional dysregulation in children who have had prior traumatic experiences (Keeshin et al., 2021). Childhood trauma has been found to have a negative impact on an individual's overall development and attachment. As emotional dysregulation in children has been highly associated with childhood trauma, trauma-informed care is recommended to be incorporated into formulating a treatment plan for emotionally dysregulated children. Trauma-informed care focuses on 4 tenets: realizing, recognizing, and responding to trauma, and resisting retraumatization. According to researchers, these tenets are critical in understanding the prevalence and impact that trauma has on a child so as to effectively treat emotional dysregulation (Keeshin et al., 2021). Children with emotional dysregulation are considered for trauma treatments if they exhibit symptoms of traumatic stress, such as intrusive reminders of a traumatic event (e.g., flashbacks, nightmares) and psychological distress precipitated by trauma reminders (Keeshin et al., 2021; Sharma-Patel & Brown, 2016).

Trauma treatments address all domains of a child's well-being that have been impacted by a traumatic event. Domains include affective, behavioural, biological, cognitive, and social. Descriptions of each domain are shown in Table 3.1. TF-CBT was originally developed to treat childhood sexual abuse. However, its efficacy in treating children exposed to a variety of traumatic experiences (e.g., domestic violence, bereavement) has been noteworthy and TF-CBT has been used to treat not only posttraumatic stress disorder (PTSD) in children but also depression and behavioural problems (Carey & McMillen, 2012; Sharma-Patel & Brown, 2016). TF-CBT is a phase-based (e.g., stabilization, trauma narration and processing, and integration and consolidation) and components-based treatment.

Table 3.1

List of Child Developmental Domains Potentially Impacted by Trauma

Domain	Description
Affective	Emotional dysregulation and feelings such as anger, anxiety and sadness
Behavioural	Behavioural dysregulation, avoidance of trauma reminders, self-injurious behaviour, maladaptive behaviours modelled through trauma (e.g., physical abuse), and noncompliance
Biological	Hypervigilance, poor sleep, increased startle response, stomach aches, headaches, and other somatic complaints
Cognitive	Intrusive trauma-related thoughts, flashbacks, maladaptive trauma-related beliefs, dissociation, psychotic symptoms, and cognitive dysregulation
Social	Impaired relationships with family, friends, and peers, social withdrawal, impaired attachment and trust, decline in school attendance and performance

Comments about TF-CBT are summarized by the acronym PRACTICE (Psychoeducation and Parenting skills, Relaxation skills, Affect regulation skills, Cognitive processing skills, Trauma narrative and processing, In vivo mastery, Conjoint child-parent sessions, and Enhancing safety). Parental involvement is essential for TF-CBT to be

effective, and parents spend as much time in therapy as their children (Sharma-Patel & Brown, 2016).

Affect regulation skills in TF-CBT target emotional dysregulation and the management of intense emotions such as anxiety, anger, and sadness. Here, emotional responses are considered dysregulated when children learn to not express, develop distance from, or learn to deny certain feelings (e.g., sadness) as a means of protecting themselves. During this component (stabilization phase), the therapist teaches the child how to become comfortable with expressing a variety of emotions and apply helpful skills in response to trauma reminders. These skills include problem-solving, seeking social support, positive distraction techniques (e.g., reading, journaling), and focusing on the present moment or mindfulness. After identifying the child's preferred affect regulation strategies, the therapist educates parents on how to support their child in implementing these strategies outside of the therapy room (Sharma-Patel & Brown, 2016).

Mindfulness Based Stress Reduction for Parents

Parental stress has long been implicated in the development of emotional dysregulation in children (Chan & Neece, 2018; Williford et al., 2007). The relationship between parental stress and childhood emotional dysregulation has also been postulated to be a bidirectional one, where parental stress places children at risk of emotional regulation difficulties and children with emotional regulation difficulties exacerbate parental stress (Chan & Neece; 2018; Davis & Thompson, 2014). Either way, introducing behaviours that mitigate parental stress levels has been found to reduce levels of emotional dysregulation in children. In a study conducted with 80 parents of children with developmental delays (between 2.5 and 5 years old), Mindfulness Based Stress Reduction (MBSR), an empirically-supported stress reduction intervention, was found to have a spillover effect on their children, reducing levels of child emotional dysregulation (Chan & Neece, 2018). Mindfulness is the

key element in MBSR, and involves bringing awareness to the present moment (Kabat-Zinn, 1990). Engagement in MBSR practices has been found to alleviate stress by enhancing qualities of self-compassion and empathy (Kabat-Zinn, 1990).

The Incredible Years Teacher Classroom Management Program

The Incredible Years Teacher Classroom Management Program (IY TCM) is a prevention program used to strengthen teacher classroom management strategies and promote prosocial behaviour in children in preschool through third grade (9 years old). The program is intended for teachers, school psychologists, and school counsellors to build positive relationships with students, prevent behaviour problems, decrease inappropriate classroom behaviour, and teach children how to regulate their emotions. The program uses Bandura's (1977) social learning theory to enhance learning of new skills. This is achieved through video recordings, role-plays, written assignments, and feedback from program leaders. Considerable empirical support has been found for the IY TCM. Students of teachers who had undergone IY TCM training were found to have higher on-task behaviour, increased pro-social behaviour, and decreased aggression (Webster-Stratton et al., 2001). Teachers who received IY TCM training were also observed to use more praise, be more confident, and be more nurturing in their interactions with students than teachers who did not receive IY TCM training (Webster-Stratton et al., 2004).

More recently, the IY TCM has been found to be effective in reducing emotional dysregulation in children (Reinke et al., 2018). In this study, 105 teachers and 1817 students from preschool through third grade in nine school districts in the Midwestern part of the USA were assessed over an academic year (i.e., from October to May). Students were not known to be diagnosed with neurodevelopmental or conduct disorders during their participation in this program. Emotional dysregulation was measured using the 'Emotional Dysregulation' subscale of the Teacher Observation of Classroom Adaptation-Checklist (TOCA-C; Koth et

al., 2009). The TOCA-C is 21-item measure of child behaviour consisting of four subscales (Emotional Dysregulation, Disruptive Behaviours, Concentration Problems, and Prosocial Behaviour). Results revealed not only a reduction in emotional dysregulation in students but also an increase in prosocial behaviour and social competence.

Distinguishing Emotional Dysregulation from Other Conditions

Chronic emotional dysregulation in early childhood has been described as a condition that "defies our current diagnostic system", suggesting that it is possible for a child to experience pervasive difficulties with emotional regulation and not meet the diagnostic criteria for a mental health condition (Althoff, 2010). Furthermore, some researchers have argued that emotional dysregulation is a core feature or symptom of certain neurodevelopmental disorders, while others have viewed emotional dysregulation as more of a comorbid condition (Nigg et al., 2020). This has resulted in further confusion over what emotion dysregulation in early childhood is and is not. Thus, to better understand how childhood emotional dysregulation should be assessed and treated, emotional dysregulation will be discussed in relation to other childhood mental health conditions that present with difficulties in emotional regulation. These include Disruptive Mood Dysregulation Disorder (DMDD), Attention-Deficit/Hyperactivity Disorder (ADHD), and Autism Spectrum Disorder (ASD).

Disruptive Mood Dysregulation Disorder (DMDD) is a childhood condition characterized by a severe disturbance in mood, such as persistent irritability or anger, as well as disruptive behaviours, such as intense temper outbursts (American Psychiatric Association [APA], 2013). DMDD is a recent addition to an extensive list of childhood conditions, making its debut in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) in 2013. Initially introduced to the DSM-5 to address concerns that children and adolescents presenting with persistent irritability were being misdiagnosed with Bipolar

Disorder, DMDD is considered a “controversial diagnosis” (Krieger & Stringaris, 2013). More specifically, industry experts have debated whether persistent irritability and certain behaviours common to young children (e.g., tantrums) should be pathologized and treated with medication (Krieger & Stringaris, 2013). Additionally, there has been controversy as to whether DMDD can be distinguished from Oppositional Defiant Disorder (ODD) based solely on symptomatology. ODD is another childhood condition featured in the DSM-5 that is also characterized by persistent irritability and anger (Meyers et al., 2017).

DMDD is considered by some researchers to be a condition that is characterized by emotional dysregulation with a focus on difficulties regulating negative affect. Essentially, severe emotional dysregulation is regarded as a key characteristic of DMDD but is not part of its diagnostic criteria (Benarous et al., 2017; Meyers et al., 2017). However, not all children who experience difficulties regulating negative affect are expected to meet the diagnostic criteria for DMDD. Based on the literature, emotionally dysregulated children exhibit difficulties regulating both positive and negative affect. While a child who is emotionally dysregulated and a child who has been diagnosed with DMDD may both face difficulties regulating intense negative affect (e.g., feelings of anger) resulting in explosive temper outbursts, the emotionally dysregulated child is also likely to have difficulties managing positive affect (e.g., feelings of excitement). More specifically, an emotionally dysregulated child may struggle to regulate feelings of excitement and happiness and may display disruptive behaviour, such as being unable to follow instructions, remain seated, or lower his or her voice. Additionally, emotional dysregulation is believed to be prevalent across the lifespan affecting children, adolescents and adults. Conversely, DMDD only affects a certain age group as a diagnosis can only be made in children and adolescents between six and 18 years old.

Like DMDD, emotional dysregulation has also been considered a core feature of Attention-Deficit/Hyperactivity Disorder (ADHD) (Nigg et al., 2020). ADHD is one of the most common neurodevelopmental disorders diagnosed in early childhood. This has created a demand for empirical studies on childhood psychopathology to focus largely on understanding ADHD and how to treat it (Egger & Angold, 2006). Children diagnosed with ADHD exhibit difficulties paying attention and controlling impulsive behaviours and are overly active. The literature suggests that it has been challenging for professionals to distinguish between normal and clinically significant behavioural difficulties in young children who are still developing the capacity to sustain attention and inhibit behavioural impulses (Nigg et al., 2004). The resultant drug-based treatment approach for ADHD in young children has raised the question of whether developmentally appropriate preschool behaviours are being over-diagnosed and inappropriately pathologized (Barbosa & Leite, 2020).

In addition to concerns about overdiagnosis, other concerns surrounding ADHD have included debates over whether emotional dysregulation should be considered a core feature of ADHD or a comorbid condition (Nigg et al., 2020). According to some researchers, it appears odd that impulsive and poorly regulated cognition and behaviour are criteria for ADHD, while impulsive and poorly regulated emotions are not (Faraone et al., 2019). However, empirical studies have not been able to determine whether emotional dysregulation is a core feature of ADHD (i.e., all children with ADHD experience difficulties with emotional regulation) due to a lack of consensus as to how emotional dysregulation in children should be measured (Faraone et al., 2019).

Despite this debate, there is no question about the importance of treating emotional dysregulation in children with ADHD. Research suggests significant impairments stemming from emotional symptoms, such as rage, irritability, intense feelings of anger, and a low

tolerance for distress (Anastopoulos et al., 2011; Biederman et al., 2012; Shaw et al., 2014). Emotional dysregulation in children with ADHD has been associated with impaired social, daily living, and adaptive skills (Lee et al., 2018). These children were also rated as less likeable than children without ADHD by unfamiliar peers in playgroups (Anastopoulos et al., 2011). Studies have found that both medical (e.g., stimulant and non-stimulant medication) and psychological treatments for ADHD (e.g., behaviour management training for parents, teachers and children, and mindfulness training) have effectively reduced symptoms of emotional dysregulation in children with ADHD. These studies are summarised by Faraone and colleagues (2019).

Like DMDD and ADHD, emotional dysregulation has also been strongly associated with youth diagnosed with Autism Spectrum Disorder (ASD) (Mazefsky & White, 2014; Samson et al., 2014). In one study, 82% of youth diagnosed with ASD (N = 123) between 5 and 21 years old (M = 12.1, SD = 3.4) experienced emotional dysregulation (Joshi et al., 2018). This was a significantly higher proportion than within a matched sample of youth diagnosed with ADHD. However, like DMDD and ADHD, emotional dysregulation is not considered a core feature of ASD and is not part of ASD's diagnostic criteria. ASD is a lifelong developmental disorder characterized by deficits in social communication and interaction as well as restrictive, repetitive behaviours or interests (APA, 2013). Symptoms of ASD are often detectable in early childhood, with social deficits being the most apparent in the first few years of life. These deficits include a lack of joint attention, failure to show interest towards others and not responding to their names when called. In addition to social deficits, young children with ASD may also struggle with managing emotions. According to researchers, children with ASD lack the necessary abstracting abilities to recognize and regulate emotions in stressful situations (Joshi et al., 2018). This may result in behavioural

symptoms such as aggression and irritability that are often associated with emotional dysregulation.

Continuum Versus Categorical Approach to Assessment

Although emotional dysregulation in young children can sometimes be a feature of a larger neurodevelopmental condition (e.g., Disruptive Mood Dysregulation Disorder), an assessment tool that accurately detects and measures childhood emotional dysregulation specifically is essential in ensuring that children are not misdiagnosed or inappropriately pathologized for developmentally appropriate behaviours (e.g., attention seeking behaviour or throwing a tantrum to achieve a desired outcome). Additionally, accurate detection and measurement will aid in treatment planning and ensure that children receive appropriate intervention. An appropriate assessment tool can also be used to monitor treatment progress, serving as both a baseline and outcome measure.

However, like many other constructs of interest in psychology (e.g., intelligence, motivation), there has been a lack of consensus over the latent structure of childhood emotional dysregulation. This debate has been most evident in the conflicting conceptual approaches (continuous vs. categorical) used by researchers in the detection and measurement of emotional dysregulation in early childhood. Some researchers have viewed emotional dysregulation in early childhood as a continuous or dimensional construct (i.e., synonymous with low emotional regulation) and have used measures of emotional regulation to quantify emotional dysregulation (Shields & Cicchetti, 1997). Other researchers have argued that emotional dysregulation in early childhood is a categorical construct (i.e., where emotional regulation and emotional dysregulation are two separate and distinct phenomena) that warrants its own assessment tool (Samson et al., 2014).

Detecting and measuring emotional dysregulation in adults has faced similar difficulties. In these cases, emotional dysregulation has been assessed using both measures of

emotional regulation (i.e., emotional dysregulation is synonymous with low regulation) and specifically designed measures of emotional dysregulation (i.e., emotional dysregulation is distinct from emotional regulation). Measures of emotional regulation used to detect emotional dysregulation in adults include the Generalized Expectancies for Negative Mood Regulation Scale (NMR-S; Catanzaro & Mearns, 1990), Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), the Affective Style Questionnaire (ASQ; Hofmann & Kashdan, 2010), and the Emotion Regulation of Others and Self (EROS; Niven et al., 2011). The Emotion Dysregulation Scale, Short Form (EDS-SF; Powers et al., 2015) on the other hand, is a specifically designed measure of emotional dysregulation based on the Affect Regulation and Q-Sort Questionnaire (Westen et al., 1997; Zittel & Westen, 2005). The EDS-SF is a 12-item self-report instrument that captures aspects of emotional dysregulation in adults, such as emotional experiencing (e.g., “Emotions overwhelm me”), cognition (e.g., “When I am upset, everything feels like a disaster or crisis”), and behaviour (e.g., “When my emotions are strong, I often make bad decisions”).

Emotional Dysregulation Synonymous with Low Regulation

For researchers who have considered emotional dysregulation in early childhood to be a continuous construct, emotional dysregulation is believed to be on the extreme end of a continuum that ranges from high to low regulation. In this case, emotional dysregulation is synonymous with low regulation (i.e., poor emotional regulation), where a child who obtains a low score on a scale measuring his or her ability to regulate emotions is likely to be emotionally dysregulated. A high score on such measures would suggest successful emotional regulation, where a child is able to recognize emotional states at an age-appropriate level and access self-soothing strategies when experiencing positive or negative affect, as well as maintaining goal-directed behaviour despite potentially interfering emotions (Berkovits et al., 2017). Several measures of emotional regulation have been used with

children and adolescents between 6 to 18 years old to quantify emotional dysregulation in this manner. (The prominent measures of emotional dysregulation in children and teenagers have been summarized in Table 3.2).

Table 3.2

Prominent Measures of Emotional Dysregulation for Children and Adolescents

Measure	Author	Scale	Age	Reporter	Description
Emotion Regulation Checklist (ERC)	Shields & Cicchetti (1997)	ER	6-12 years	Parent	24 items; 2 subscales (emotional regulation & lability/negativity)
Cognitive Emotion Regulation Questionnaire (CERQ)	Garnefski et al. (2001)	ER	12-17 years	Youth	36 items; 9 subscales (acceptance, refocus on planning, positive refocusing, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, catastrophizing)
Difficulties in Emotion Regulation Scale for Adolescents (DERS-A)	Weinberg & Klonsky (2009)	ER	13-17 years	Youth	36 items; 6 subscales (nonacceptance, awareness, strategies, goals, impulse, & clarity)
Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)	Gullone et al. (2010)	ER	9-18 years	Youth	10 items; 2 subscales (cognitive reappraisal & expressive suppression)
Child Behaviour Checklist-Dysregulation Profile (CBCL-DP)	Althoff et al. (2010)	ED	1.5-5 years	Parent	Attention, Aggression, and Anxiety/Depression subscales of the CBCL
Child Behaviour Checklist-Emotion Dysregulation Index (CBCL-EDI)	Samson et al. (2014); Berkovits et al. (2017)	ED	6-18 years; 4-7 years	Parent	18 items; Behaviours associated with emotional dysregulation

Note: ER = Measures of emotional regulation, ED = Measures specifically designed to measure emotional dysregulation

The ERC (Shields & Cicchetti, 1997) is a 24-item parent-report measure of emotional regulation that has been used to assess emotional regulation in children between 6 and 12

years old. The ERC assesses appropriate emotional expression and dysregulated affect with two subscales, “emotional regulation” and “lability/negativity” respectively. The emotion regulation subscale (ERC-ER) assesses overall mood, the ability to label and express emotions, and the ability to appropriately display emotions in a variety of social situations. Items are scored on a 4-point scale (1 = *never*, 4 = *almost always*), with higher scores reflecting greater emotion regulation abilities.

Conversely, the lability/negativity subscale (ERC-LN) assesses emotional flexibility, rapid changes in mood states, impulsivity, and dysregulation of positive and negative emotions. Items are also scored on a 4-point scale (1 = *never*, 4 = *almost always*), with higher scores reflecting greater emotion regulation difficulties. ERC-LN scores have been used collectively in some studies as a measure of childhood emotional dysregulation (Berkovits & Baker, 2014; Berkovits et al., 2017). In other studies, scores from both ERC-ER and ERC-LN subscales have been merged, with higher scores suggesting good emotional regulation competencies and lower scores suggesting emotional dysregulation (Amédée et al., 2019).

The DERS-A (Weinberg & Klonsky, 2009) is a 36-item self-report questionnaire designed to evaluate emotional dysregulation in adolescents between 13 and 17 years by assessing difficulties regulating negative emotions. Like the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), the DERS-A contains six subscales. These include nonacceptance of emotional responses (Nonacceptance), lack of emotional awareness (Awareness), limited access to emotion regulation strategies (Strategies), difficulties engaging in goal-directed behaviour when emotionally aroused (Goals), impulse control difficulties (Impulse), and lack of emotional clarity (Clarity). Items are rated on a 5-point scale (1 = *almost never*, 5 = *almost always*) with higher overall scores indicating greater difficulty with emotional regulation (i.e., poor emotional regulation).

The ERQ-CA (Gullone et al., 2010) is a 10-item self-report questionnaire adapted from the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Originally designed for adults, the ERQ was revised to effectively assess emotional regulation in children and adolescents between 9 and 18 years. Revisions included simplification of item wording (e.g., changing "emotions" to "feelings") and reducing the number of response options from a 7-point to 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The ERQ-CA is otherwise identical to the ERQ in that it consists of two subscales that assess the ability to regulate positive and negative emotions through cognitive reappraisal (6 items) and expressive suppression (4 items). Items that assess cognitive reappraisal strategies include "when I want to feel happier, I think about something different" while items that assess expressive suppression include "when I am feeling happy, I am careful not to show it". Higher overall scores indicate greater emotional regulation while lower scores suggest emotional dysregulation.

The CERQ (Garnefski et al., 2001) is a 36-item self-report questionnaire developed to assess cognitive approaches to regulating emotions in 12- to 17-year-olds. The questionnaire consists of nine subscales that explore both adaptive (acceptance, refocus on planning, positive refocusing, positive reappraisal, putting into perspective) and maladaptive (self-blame, blaming others, rumination, catastrophizing) cognitive strategies. Items are rated on a 5-point scale (1 = *almost never*, 5 = *almost always*), yielding nine subtest scores. Higher subtest scores suggest greater use of the cognitive strategy. Low scores on adaptive subtests and high scores on maladaptive subtests have been associated with emotional dysregulation (Jun et al., 2020).

Emotional Dysregulation as a Distinct Phenomenon

While some researchers view emotional dysregulation in early childhood as a continuous construct, others believe that emotional dysregulation in early childhood should

be classified as a categorical construct that is either present or absent (Samson et al., 2014). According to this view, instead of considering emotional regulation and emotional dysregulation as opposite ends of the same spectrum, the two should be treated as separate and distinct phenomena, warranting an assessment tool that is specifically designed to detect and measure emotional dysregulation in children.

To establish this, two assessment tools were developed by sampling items from the Child Behaviour Checklist (CBCL; Achenbach, 1991), a 113-item parent-report measure for assessing problem behaviours in children between 6 to 18 years old. The CBCL has been used extensively to assess developmental psychopathology, such as ADHD and ODD (Achenbach & Rescorla, 2001). The CBCL consists of 11 subscales: Delinquent Behaviour, Aggressive Behaviour, Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Externalizing Problems (inclusive of Delinquent and Depressive Behaviours), Internalizing Problems (includes Withdrawn, Somatic Complaints, and Anxiety/Depressed Problems) as well as Total Problems (inclusive of Externalizing, Internalizing, Social, Thought and Attention Problems). A subscale score of 70 (2 Standard Deviations (SDs) above the mean) has been widely accepted as a clinically meaningful cut-off score.

Based on the CBCL, the assessment tools that have been developed to measure childhood emotional dysregulation include the Child Behaviour Checklist-Dysregulation Profile (CBCL-DP; Althoff et al., 2010) and the Child Behaviour Checklist-Emotion Dysregulation Index (CBCL-EDI; Samson et al., 2014). Rather than assessing a child's ability to regulate his or her emotions, these specially designed measures directly assess a child's degree of emotional dysregulation by rating the observable behaviours that are believed to be associated with emotional dysregulation in young children (e.g., screaming, crying, aggressive behaviour).

The CBCL-DP (Althoff et al., 2010) is a parent-report measure developed to detect dysregulation in preschool children aged 1.5 to 5 years. Initially developed to assess paediatric Bipolar Disorder, the CBCL-DP combines scores from the Attention, Aggression, and Anxiety/Depression subscales of the CBCL for preschoolers (Achenbach & Rescorla, 2000; Masi et al., 2014). Developers state that dysregulation, or difficulty with self-regulatory behaviour, occurs across three domains of regulation: Affective (Anxiety/Depression), Behavioural (Aggressive Behaviour), and Cognitive (Attention Problems). As it draws from both the Internalizing and Externalizing subscales of the CBCL, the CBCL-DP is believed to capture both developmental and behavioural issues associated with emotional regulation deficits in young children (Pat-Horenczyk et al., 2015).

Interpretation of CBCL-DP results has varied across studies. Scores from CBCL-DP subscales have been totalled and used as a continuous variable, where higher scores suggest a greater degree of emotional dysregulation (Pat-Horenczyk et al., 2015). CBCL-DP subscale scores have also been combined and used categorically, where clinical cut off points (e.g., 1 SD above the mean ≥ 180 suggests deficient emotional self-regulation; 2 SDs above the mean ≥ 210 suggest severe emotional dysregulation) have been used to detect emotional dysregulation in clinical samples (Biederman et al., 2012; Kim et al., 2012).

The CBCL-EDI (Samson et al., 2014) is an 18-item parent-report questionnaire initially developed to measure emotional dysregulation in children diagnosed with Autism Spectrum Disorder (ASD). CBCL-EDI items were selected based on expert ratings from the CBCL. Twenty-three clinicians and experts working in the field of child psychiatry and emotion regulation research rated each CBCL item on relevance (to emotional dysregulation) and confidence (in their selection). The resultant 18-item questionnaire measured behaviours believed to be associated with childhood emotional dysregulation, such as screaming, arguing, crying, and destroying things. The CBCL-EDI has been used in two studies to date

and has been revised for use with children between 4 and 7 years (Berkovits et al., 2017; Samson et al. 2014). However, developers reportedly found it difficult to differentiate between emotional dysregulation and problematic emotionality (e.g., excessive emotional reactivity) and have highlighted the need to clearly distinguish the two constructs in future studies (Samson et al., 2014).

Discussion

Childhood emotional dysregulation has been associated with negative outcomes such as child adjustment difficulties (Herdon et al., 2013), elevated parental stress levels (Chan & Neece; 2018), and the development of mental health issues in adulthood (Crowell et al., 2015; Keenan, 2000). As a result, there has been increased interest in not only better understanding how emotional dysregulation develops in children (e.g., risk factors, protective factors etc) but also how childhood emotional dysregulation can be accurately and reliably detected and measured. However, since emotional dysregulation is not recognized by the DSM-5 as a mental health disorder and there are no accompanying diagnostic criteria, detecting and measuring emotional dysregulation in children has been challenging.

Firstly, there have been concerns as to whether parents, teachers, and mental health professionals have been pathologizing the developmentally appropriate behaviours of young children (Keenan, 2000). Emotional dysregulation in adolescents and adults has been broadly defined as the "inability to regulate emotional cues, experiences, actions, verbal responses, and nonverbal expressions under normative conditions" (Linehan, 1993). However, when young children fail to independently regulate their emotions, it is reasonable to question whether their struggles with intense emotions are developmentally appropriate and consequently whether they are indeed emotionally dysregulated as the adult definition suggests. Over the years, research has revealed that emotional regulation is not a skill that is mastered at a young age. Essentially, when faced with emotional arousal, people try their best

to manage their emotions to maintain a satisfying homeostasis (Thompson, 1991). Emotional regulation can occur as early as three months after birth, where infants have been observed to display self-soothing behaviours, such as sucking on their fingers and turning their gaze away from emotionally arousing stimuli (Thompson, 1991).

However, due to a somewhat limited capacity to cope with intense emotions (e.g., fear, anxiety) on their own, emotional regulation in infancy is largely extrinsic in nature. In other words, infants need to rely heavily on assistance from caregivers for co-regulation to reduce distress and promote positive affect (Pat-Horenczyk et al., 2015). This dependency on caregivers spans from infancy to childhood, where the capacity to self-regulate emotional arousal states increases with age-related developments in neurophysiology, cognitive and linguistic skills, and emotional understanding (Thompson, 1991). Once children reach adolescence, most are believed to be able to successfully regulate their emotions by independently accessing an age-appropriate repertoire of self-soothing strategies (Berkovits et al., 2017). Thus, when assessing emotional dysregulation, there is a need to differentiate developmentally appropriate behaviours that are common to young children (e.g., tantrums) from clinically significant behaviours (e.g., self-harming behaviour or aggression).

Research suggests that emotional dysregulation has been observed from as early as birth (Crowell et al., 2015). However, an assessment tool that can accurately and reliably detect emotional dysregulation in newborns has yet to be developed. Based on the assessment tools that have been featured in this review, emotional dysregulation can be detected in children as young as 18 months old with the Child Behaviour Checklist-Dysregulation Profile (CBCL-DP; Althoff et al., 2010). Thus, there is a need to either assess whether existing assessment tools can be used from birth or whether a new assessment tool should be developed. This will enable the detection of emotional dysregulation at an early stage of development and facilitate early intervention.

The complex interaction between contextual factors (e.g., family environment) and individual differences (e.g., temperamental characteristics) in the development of emotional dysregulation in young children has also been highlighted in this review (NICHD Early Child Care Research Network, 2004). The importance of caregiver responsiveness and attunement in the management of emotional dysregulation has also been discussed (Pat-Horenczyk et al., 2015). However, the assessment tools that are commonly used to detect and measure emotional dysregulation in children do not take these important factors into account. For example, commonly used measures, such as the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) and the Child Behaviour Checklist-Emotion Dysregulation Index (CBCL-EDI; Samson et al., 2014), are based on the reported accounts of children by their parents. If parents do not spend the entire day with their children (e.g., parents are working full-time, not the main caregivers), these assessment tools may not provide an accurate overview of how well their children regulate their emotions, possibly resulting in unintentional bias or pathologizing of developmentally appropriate behaviours. Chan and Neece (2018) used behavioural observation methods to detect and measure childhood emotional dysregulation in an attempt to circumvent these concerns by ensuring high standards of inter-rater reliability between two independent reviewers. However, a limitation of an inter-rater reliability score is that it does not allow for the possibility that raters guessed on their ratings. Thus, assessment protocols for childhood emotional dysregulation could perhaps be based on behavioural observations of interactions between caregivers in various settings (e.g., home, school) and their children during times of emotional arousal as well as obtaining a more in-depth understanding of a child's family environment through clinical interviews with both parents.

Next, to further complicate the study of emotional dysregulation in early childhood, conflicting conceptual approaches (continuous vs. categorical) have been used by researchers and clinicians in the detection and measurement of emotional dysregulation in early

childhood. Specifically, some researchers have viewed emotional dysregulation in early childhood as a continuous construct (i.e., synonymous with low emotional regulation) and have used measures of emotional regulation to quantify emotional dysregulation (Shields & Cicchetti, 1997). Other researchers have argued that emotional dysregulation in early childhood is a categorical construct (i.e., where emotional regulation and emotional dysregulation are two separate and distinct phenomena) that warrants its own assessment tool (Samson et al., 2014).

Extensive research on latent structure analysis suggests that both continuum and categorical approaches to assessment have their merits and limitations (Meehl, 1995; Ruscio & Ruscio, 2008), as detailed in Chapter 2. However, to determine which approach will more accurately detect and measure emotional dysregulation in young children, the construct's latent structure must be uncovered. Establishing the latent structure of emotional dysregulation in early childhood will have some important implications for researchers and clinicians. Essentially, acquiring structural knowledge through latent structure analysis has been found to improve diagnostic accuracy, inform assessment and treatment planning, as well as influence research design (Ruscio & Ruscio, 2008).

In terms of psychological intervention for childhood emotional dysregulation, clinicians have largely taken a continuous approach, targeting the enhancement of emotional regulation skills in children. Through this lens, childhood emotional dysregulation is viewed by clinicians as being synonymous with low emotional regulation and that enhancing emotional regulation skills will ultimately reduce emotional dysregulation in a child. Dialectical Behavior Therapy (DBT) for adolescents, Trauma-Focused Cognitive Behaviour Therapy (TF-CBT), Mindfulness Based Stress Reduction (MBSR) for parents and The Incredible Years Teacher Classroom Management Program (IY TCM) for educators have been effective in treating emotional dysregulation in children. Apart from MBSR for parents,

these interventions teach children how to regulate their emotions through problem-solving, seeking social support, positive distraction techniques (e.g., reading, journaling), and focusing on the present moment or mindfulness (Sharma-Patel & Brown, 2016). Treatment approaches have included parents who have been educated in how to support their children in implementing emotional regulation strategies. However, to further enhance treatment outcomes and given the effectiveness of the IY TCM program, including teachers in the treatment planning of preschoolers and school-aged children struggling with emotional dysregulation might be worthwhile.

Although enhancing emotional regulation skills has been found to be effective in reducing emotional dysregulation in children, conflicting approaches to the conceptualization of childhood emotional dysregulation (continuous vs. categorical) make it reasonable to question the validity and reliability of these results. More specifically, studies that have explored the effectiveness of Dialectical Behavior Therapy (DBT) for adolescents (Gill et al., 2018), Trauma-Focused Cognitive Behaviour Therapy (TF-CBT) (Sharma-Patel & Brown, 2016), Mindfulness Based Stress Reduction (MBSR) for parents (Chan & Neece, 2018) and The Incredible Years Teacher Classroom Management Program (IY TCM) for educators (Reinke et al., 2018) have used four separate assessment tools that have defined childhood emotional dysregulation in different ways. A lack of agreement over how childhood emotional dysregulation should be conceptualized signifies differences in professional opinions over when intervention for childhood emotional dysregulation is warranted and foreshadows the possibility that children may not be receiving the intervention that they require, ultimately putting them at risk for psychopathology later in life (Crowell et al., 2015; Keenan, 2000).

Recommendations for Future Research

Findings from this review have highlighted three key areas for further scientific inquiry. These are: (1) to identify an assessment tool that will be able to accurately and reliably detect emotional dysregulation in babies from 0 to 18 months; (2) to establish whether including behavioural observations and interviewing both parents will add value to the assessment of childhood emotional dysregulation; and (3) to determine which conceptual approach to assessment (continuous vs. categorical) is more suitable by uncovering the latent structure of emotional dysregulation in early childhood.

However, attempting to address these concerns will be challenging without first understanding the defining features of emotional dysregulation in young children. Based on the literature reviewed here, emotional dysregulation may look quite different in children compared to adults and therefore should not adopt the same definition. For example, childhood emotional dysregulation has been associated with frequent tantrums and aggressive behaviour (Keenan, 2000), while emotional dysregulation in adults has been associated with emotional instability and suicidal behaviour (Linehan, 1993).

In general, emotional dysregulation is believed to occur when any or all of the following abilities are absent: (a) emotional awareness and understanding; (b) emotional acceptance; (c) the application of appropriate strategies to manage emotional responses; and (d) the ability to manage impulsive behaviours and behave in accordance with desired goals when faced with intense emotions (Gratz & Roemer, 2004; Southam-Gerow & Kendall, 2001). However, the literature also suggests that young children do not develop some of the abilities mentioned here until adulthood (e.g., emotional awareness and understanding, emotional acceptance) and continue to benefit from caregivers' co-regulation into their teenage years (Braet et al., 2014; Thompson, 1994).

Collectively, these findings suggest the need to review the defining features of emotional dysregulation in early childhood and establish a definition that is suitable for this age group (i.e., 0-8 years old). This is consistent with the literature that has highlighted the need for an agreed upon definition for emotional dysregulation (Thompson, 1994) as well as the importance of addressing any definitional inadequacies before attempting to uncover a construct's latent structure (Mullen, 2003). For the current purposes, this aim was addressed by systematically reviewing the current scholarly literature to establish how researchers define emotional dysregulation in early childhood. These findings were subsequently presented to an international Delphi panel of expert practitioners (e.g., clinical and education psychologists) who are directly involved in assessing and treating emotional dysregulation in young children, to gain additional insight on this construct's definitional features.

Clearly defining emotional dysregulation in early childhood will not establish the construct's latent structure per se; however, it will facilitate discussions as to whether emotional dysregulation should be viewed as synonymous with low emotional regulation (continuous) or as a phenomenon that is discrete from emotional regulation (categorical). If emotional dysregulation is found to be predominantly defined as synonymous with low regulation, the identification and validation of an existing assessment tool that measures emotional regulation (e.g., The Emotion Regulation Checklist; ERC) should be explored with children below eight years of age. Conversely, if emotional dysregulation in early childhood is predominantly defined as independent from emotional regulation, the development of an assessment tool that specifically measures emotional dysregulation in children below eight years is warranted. Ultimately, establishing an appropriate assessment tool that accurately and reliably measures emotional dysregulation in early childhood will aid in treatment planning to ensure that children receive timely intervention to prevent the development of mental health issues in adulthood (Crowell et al., 2015; Keenan, 2000). An appropriate

assessment tool can also be used to monitor treatment progress, serving as both a baseline and outcome measure.

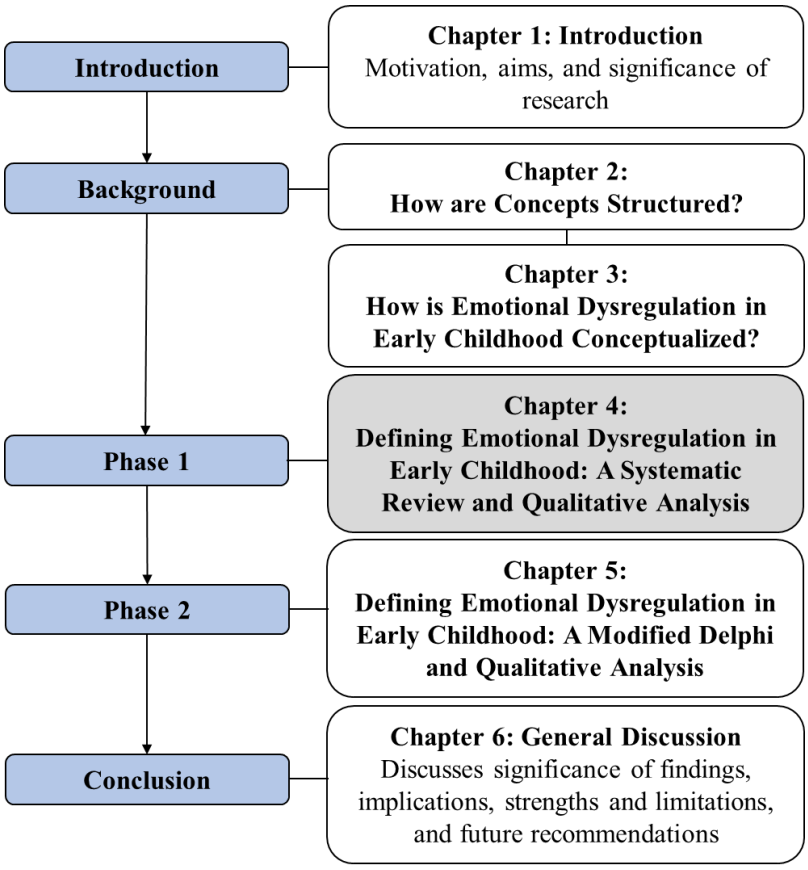
Chapter 4

Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis

Chapter 4 presents findings from the first phase of the current project. In this phase, the current literature is systematically reviewed to establish how emotional dysregulation in early childhood is defined and measured by researchers. The relationship between how emotional dysregulation in early childhood is defined and the types of measures available are assessed. The chapter concludes with a discussion of the findings from the current systematic review and recommendations for future research.

Figure 4.1

Scope of Thesis



Study Rationale and Research Design

To gain a deeper understanding of how childhood emotional dysregulation is defined and measured by researchers, the current study was carried out in two stages. In the first stage of this study, a systematic review of the literature on childhood emotional dysregulation was conducted. This was followed by a qualitative analysis of systematic review findings. A systematic review was selected for the first stage of this study as it assesses and synthesizes relevant literature to provide data for analysis that is accurate, reliable, and free from bias. A systematic review is a form of secondary research and was selected over a primary research design as it allows for the evaluation of multiple outcomes from prior primary research studies. This was deemed necessary in order to consolidate diverse definitions of childhood emotional dysregulation as well as methods of assessment across the literature.

In the second stage of this study, a qualitative as opposed to quantitative approach to analysing systematic review findings was selected (e.g., thematic analysis, not meta-analysis). Systematic reviews typically use meta-analytic techniques to detect effects across smaller studies. However, findings from systematic reviews can also be synthesized and analysed without performing a meta-analysis (Imms et al., 2016; Lederer et al., 2014). As the current study explored conceptual issues related to emotional dysregulation in early childhood (i.e., how childhood emotional dysregulation is defined by researchers), a qualitative approach to data analysis that incorporated elements of constructivist grounded theory was selected. This approach was selected based on its applicability in the development of explanatory theoretical frameworks that are grounded in relevant empirical data (Charmaz, 2006). This approach has been adopted by other researchers who have also attempted to achieve a deeper understanding of a construct following a systematic or scoping review (Lederer et al., 2014, Newbronner et al., 2018).

Research Aims

The current study aims to (1) establish how emotional dysregulation in early childhood is defined by researchers and to propose a potential definitional framework, (2) identify and review all available measures of emotional dysregulation in early childhood, and (3) assess the relationship between how childhood emotional dysregulation is defined and measured in the literature.

Method

Search Strategy

A search of seven major databases was performed for this systematic review in May 2019 and updated in October 2020. Databases included Scopus, PsychINFO (ProQuest), ERIC, Web of Science, PubMed Central, MEDLINE (Ovid), and SAGE Journals. These databases were selected as they integrate information from the fields of psychology, child development, education, and health. The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009) protocol and the PICOS (Population, Intervention, Comparison, Outcome measures, Study design) framework was used to design the search strategy. The PICOS framework was selected because of its well-established efficacy in framing and answering clinical research questions (Schardt et al., 2007). The review's research protocol was registered with PROSPERO, an international database of systematic reviews that focuses on health-related outcomes, in July 2019 to increase methodological transparency. Details of the protocol for this systematic review (Reg No: CRD42019142532) can be accessed at the PROSPERO register: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=142532

Table 4.1

Systematic Review Search Terms

Emotional Dysregulation	Early Childhood
"emotion* dysregulation"	"early childhood"
"affect dysregulation"	"pre-schooler"
"emotion* dysfunction"	child*
"affect dysfunction"	baby*
"emotion* disorder"	infan*
"affect* disorder"	toddler*
"labile affect"	babies
"impaired emotion* regulation"	"primary school"
"impaired affect"	"elementary school"
	kindergarten
	human (MeSH)
	child (MeSH)
	child, preschool (MeSH)
	infant (MeSH)
	infant, newborn (MeSH)

Search String

Search terms were developed based on the research question's key concepts of "emotional dysregulation" and "early childhood". Synonyms and variations in search terms (e.g., using truncation and phrases) were identified and agreed upon with the researcher's thesis advisors to maximize the retrieval of relevant results (Table 4.1). Medical Subject Headings (MeSH) terms were explored and used with databases such as MEDLINE and PubMed Central. Boolean operators, such as AND, OR, and NOT, helped to further narrow the search to relevant fields. Minor adjustments were made to the search string based on the requirements of the respective databases. Sample search strings from Scopus and PubMed Central (featuring MeSH terms) can be found in Appendix A.

Selection Criteria

The current systematic review included articles that either defined or measured emotional dysregulation in early childhood. Early childhood has been defined as the period from birth to eight years old by the World Health Organization (2020). To enable a

comprehensive review of the available literature, experimental studies (e.g., randomized controlled trials, single-group pre- and post-test studies, and single-case experimental designs) and theoretical works (e.g., literature reviews) were included. As the population of interest was children in early childhood, study participants were limited to children between 0 to 8 years old and parents of children between 0 to 8 years old. Participants between 0 to 8 years old diagnosed with Autism Spectrum Disorder (ASD) and parents of children diagnosed with ASD were also included in the review. The decision to include these participants was based on the literature that has strongly associated emotional dysregulation with ASD (Mazefsky & White, 2014; Samson et al., 2014) as well as on the professional experience of the researcher who has worked with children diagnosed with ASD in early intervention and special education settings.

Children and parents of children within this age group who have been diagnosed with Disruptive Mood Dysregulation Disorder (DMDD), Schizophrenia, and Post-Traumatic Stress Disorder (PTSD) were excluded from the review. This was because these conditions are generally characterized by difficulties in regulating only intense negative emotions or mood disturbances (e.g., persistent irritability, feelings of depression) and not difficulties in regulating both positive and negative emotions (as what is understood about emotional dysregulation). Children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) were also excluded from the review as there is no conclusive evidence that suggests that children who experience impulsive and poorly regulated cognition and behaviour (i.e., symptoms of ADHD) also experience emotional regulation difficulties (Faraone et al., 2019; Nigg et al., 2020).

To ensure that important information was not omitted, studies that utilized known measures of emotional dysregulation were included even if emotional dysregulation was not the primary study objective. The search was limited to studies published during or after 1989,

which marked the start of an “affect revolution” that reportedly changed how emotion processes were conceptualized by researchers (Adrian et al., 2011). Only full-text English articles that were published in peer reviewed journals were included in the review. Grey literature, conference papers, theses, books, newspaper articles, incomplete texts, and abstracts were excluded due to the level of detail required for data analysis. As the current review focused on analyzing findings from primary studies, other systematic reviews (that are considered to be secondary studies) were also excluded. The selection criteria are summarized in Table 4.2.

Table 4.2

Systematic Review Selection Criteria

	Inclusion Criteria	Exclusion Criteria
Population	Participants are children in early childhood between 0 to 8 years old (including samples of participants with a mean age of 8 years old) or parents of children between 0 to 8 years old, children diagnosed with ASD between 0 to 8 years old or parents of children diagnosed with ASD between 0 to 8 years old	Participants diagnosed with DMDD, ADHD, PTSD, or Schizophrenia
Intervention	Any form of psychological intervention targeting emotional dysregulation	
Outcome Measures	All measures of emotional dysregulation that include paper-and-pencil or computer administered questionnaires and structured interviews	
Study Design	Experimental studies including randomized controlled trials, quasi-randomized controlled trials, single-group pre- and post-test studies, and single-case experimental designs	Other systematic reviews
Publication	Articles published as full texts in peer reviewed journals (including theoretical works that define emotional dysregulation)	Conference papers, theses, books, newspaper articles, grey literature, incomplete texts, abstracts, non-English language papers
Timeframe	Start of the "affect revolution" (1989) to October 2020 (End of current systematic review)	

Abstract Screening

Abstrackr, a free, open-source tool (http://abstrackr.cebm.brown.edu/) developed to facilitate abstract screening in systematic reviews, was used to screen all articles generated by the database search. The screening process was performed by two reviewers (i.e., the researcher and an independent reviewer). The researcher screened one hundred percent of article abstracts while the independent reviewer screened ten percent of article abstracts to ensure inter-rater reliability. Both reviewers were provided with the same list of colour-coded key words, consisting of key concepts and free-text terms from the original database search, and a decision-making chart to help decide whether an article was to be included (Appendix B). Abstrackr enabled both reviewers to concurrently screen article abstracts and flagged disagreements between reviewers over inclusion or exclusion of articles. Inter-rater reliability for abstract screening was 98%. Disagreements were resolved through a discussion between reviewers and an article was only included if an agreement was met. The titles and abstracts of shortlisted articles were subsequently exported to EndNote, a reference management software tool, where full texts were retrieved.

Search Outcome

The initial database search identified 2,322 journal articles. After removing duplicates, 2,055 titles and abstracts were screened for inclusion. Abstract screening shortlisted 112 articles and full texts for these articles were subsequently retrieved. Full texts were read by the researcher and assessed for eligibility using the study's selection criteria. Seventy-three articles that did not meet the selection criteria were removed from the final list. A total of 39 articles met the selection criteria for the current systematic review and served as a basis for analysis. The entire review process is summarized in Figure 4.2. From the final 39 articles, 29 articles (74.36%) explicitly defined emotional dysregulation in early childhood while 32 articles (82.05%) featured a measure of childhood emotional dysregulation. Publication dates for the final journal articles spanned almost three decades from 1994 to

2019. Based on the location of the first author, the final articles originated from the United States (56.41%), Canada (12.85%), the United Kingdom (7.69%), Australia (7.69%), Germany (2.56%), Norway (2.56%), the Netherlands (2.56%), Turkey (2.56%), Israel (2.56%) and South Korea (2.56%). A large majority of the studies were quantitative in nature (84.60%) with one case study (2.60%) and five literature reviews (12.80%). An overview of the final 39 studies included in the current review is provided in Table 4.3.

Figure 4.2

Overview of Systematic Review Process

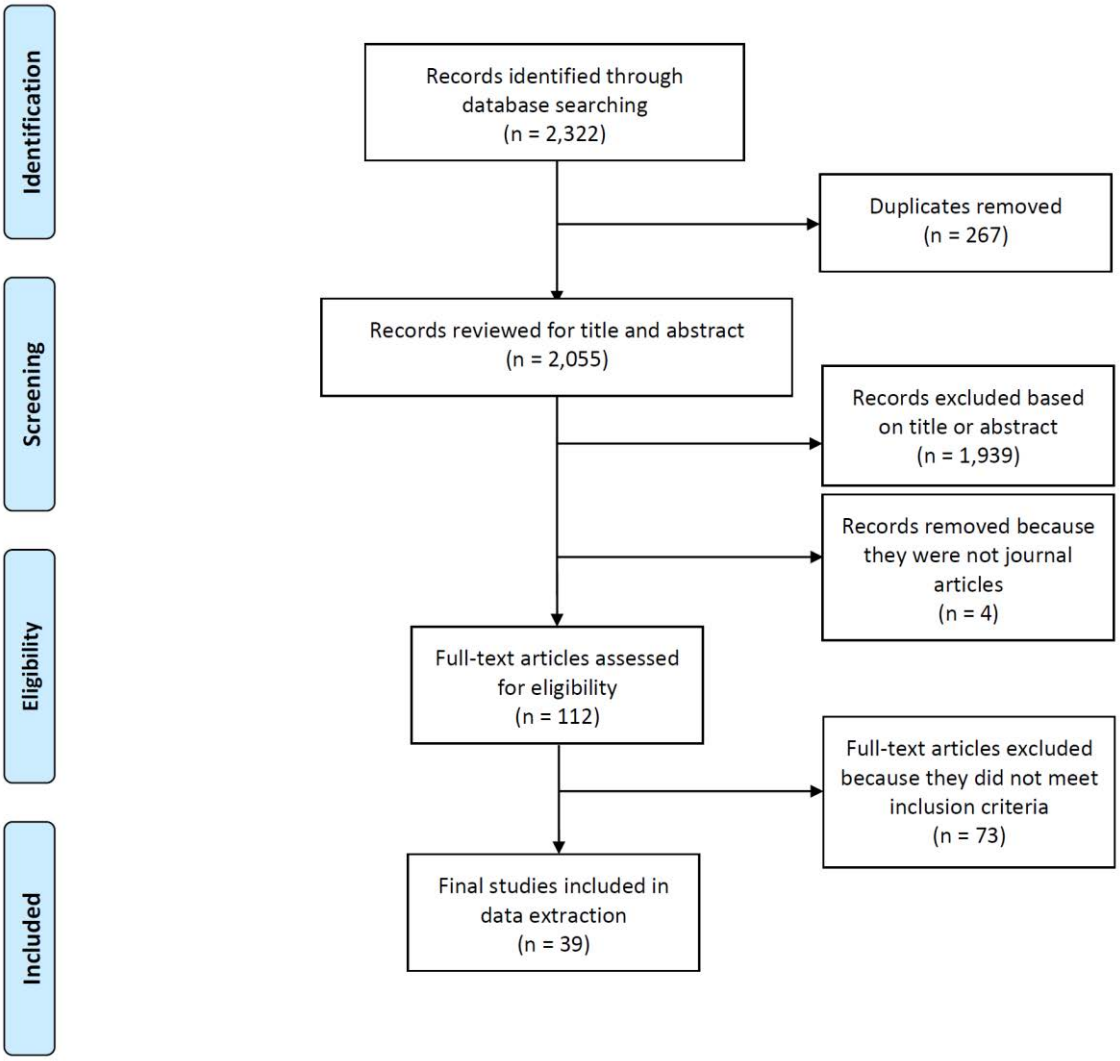


Table 4.3

Summary of Final Journal Articles Included in Systematic Review

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
1	1994	Field	Reviews how the physical or emotional unavailability of the mother contributes to emotional dysregulation.	USA	Literature Review	Definition	NA	NA	NA
2	1995	Rubin et al.	Determines whether the interaction between emotional regulation and social interaction would predict social adaptation in preschool-aged children.	Canada	Empirical Study	Both	Parent Report	Emotionality and Soothability subscales of Colorado Child Temperament Inventory (CCTI; Buss & Plomin, 1984; Rowe & Plomin, 1977)	4 years (*M* = 54.75 months, *SD* = 4.8 months)
3	2000	Keenan	Discusses challenges with defining emotional dysregulation in young children and how emotional dysregulation puts young children at risk for psychopathology later in life.	USA	Literature Review	Definition	NA	NA	NA

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
4	2001	Coplan et al.	Examines the relationship between different forms of children's nonsocial play behaviour and adjustment in kindergarten.	Canada	Empirical Study	Both	Parent Report	Emotionality and Soothability subscales of Colorado Child Temperament Inventory (CCTI; Buss & Plomin, 1984; Rowe & Plomin, 1977)	*M* = 66.16 months, *SD* = 4.11 months
5	2002	Maughan & Cicchetti	Examines the effects of child maltreatment and inter-adult violence on children's development of strategies for emotional regulation and socioemotional adjustment. Also examines the mediational role of emotional dysregulation on the link between children's pathogenic relational experiences and behavioural outcomes.	USA	Empirical Study	Measure	Behavioural Observation	Person-Oriented Classification System (Cummings, 1987)	4-6 years (*M* = 5.31, *SD* = 1.11)
6	2003	Morrell & Murray	Investigates the early processes, such as	UK	Empirical Study	Measure	Behavioural Observation	An emotional dysregulation	ED assessed

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			childhood emotional dysregulation, that are involved in the development of symptoms of conduct disorder and hyperactivity.					coding system developed by authors	at 9 months old
7	2004	NICHD Early Child Care Research Network, 2004	Examines child, maternal, and family antecendents of children's early emotional dysregulation within the mother-child relationship and later cognitive and socioemotional correlates of emotional dysregulation.	USA	Empirical Study	Both	Behavioural Observation	An emotional dysregulation coding system developed by NICHD Early Child Care Research Network (2004)	ED assessed at 24 and 36 months old
8	2004	Miller et al.	Investigates whether individual differences in emotional and behavioural dysregulation (emotional and behavioral) are associated with peer social competence and	USA	Empirical Study	Both	Behavioural Observation and Parent Report	Emotionally Negative Dysregulation Coding System and Emotion Regulation Checklist (ERC;	3.4-5.2 years (*M* = 4.34, *SD* = .53)

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			teacher ratings of classroom adjustment in a sample of low-income preschoolers.					Shields & Cicchetti, 1997)	
9	2004	Thijs et al.	Examines whether different types of withdrawal among young children could be assessed with Behavior Questionnaire for Two- to Six-Year-Olds (BQTSYO).	The Netherlands	Empirical Study	Both	Teacher Report	Behavior Questionnaire for Two- to Six-Year-Olds, Modified Version (BQTSYO-M; Thijs et al., 2004)	Study 1: *M* = 65.2 months, *SD* = 7.7 months Study 2: *M* = 67.5 months, *SD* = 8.4 months
10	2007	Baker et al.	Examines whether children's emotion dysregulation and maternal scaffolding at 4 years old predict social skills at 6 years old.	USA	Empirical Study	Both	Behavioural Observation	Dysregulation Coding System (Hoffman et al., 2006)	ED assessed at 4 and 6 years old
11	2007	Williford et al.	Examines the stability of parenting stress across early childhood and factors that parenting stress in parents of children at risk for	USA	Empirical Study	Both	Behavioural Observation	Emotional Dysregulation Index developed by authors	ED assessed at 2 years old

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			externalizing behaviour problems.						
12	2009	Leerkes et al.	Examines the associations between maternal sensitivity to infant distress and non-distress and infant social-emotional adjustment.	USA	Empirical Study	Measure	Behavioural Observation	An emotional dysregulation coding system developed by NICHD Early Child Care Research Network (2004)	ED assessed at 2 and 3 years old
13	2010	Stringaris et al.	Tests the hypothesis that two distinct early temperamental precursors, emotionality and activity, underlie ODD and predicts its comorbidities.	UK	Empirical Study	Definition	NA	NA	ED assessed at 38 months
14	2011	Brown & Ackerman	Examines the relationship between contextual risk, maternal negative emotionality, and preschool teacher reports of emotion dysregulation in children from	USA	Empirical Study	Both	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997)	2-6 years (M = 4 years 1 month, SD = 7.24 months)

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			economically disadvantaged families.						
15	2011	Giesbrecht et al.	Examines within-person (aggression and emotional dysregulation), between-person (sex and age), and between-school (participation in a victimization prevention program) the factors that influence changes in physical and relational victimization over the first three years of elementary school.	Canada	Empirical Study	Both	Teacher Report	Four items selected from the Early School Behaviour Scale (ESBS; Caldwell & Pianta, 1991)	*M* = 6.3 years, *SD* = 0.32 months
16	2012	Chang et al.	Examines the additive and interactive effects of cumulative risk and child negative emotionality on children's social competence in the transition from preschool to school and to test whether these associations were	South Korea	Empirical Study	Measure	Behavioural Observation	Two emotional dysregulation coding systems (Grolnick et al., 1996; Cole et al., 1994)	ED assessed at 1.5-2 years old; 3.5 years old; 5 years old; 6 years old

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			mediated by child emotion regulation.						
17	2012	Röll et al.	Reviews recent longitudinal studies that investigate the relationship between emotional regulation and aggressive behaviour in childhood.	Germany	Literature Review	Definition	NA	NA	NA
18	2012	Scott & O'Connor	A Randomized Controlled Trial to assess the impact of the Incredible Years program on children with emotional dysregulation.	UK	Empirical Study	Both	Parent Report	Children separated into Headstrong or Emotionally Dysregulated groups based on parent ratings of 8 DSM-IV diagnostic criteria for oppositional defiant disorder	5-6 years (*M* = 5.18, *SD* = .30)
19	2013	Herndon et al.	Investigates whether childrens' emotional expression or ability to regulate emotions are associated with teachers'	USA	Empirical Study	Both	Behavioural Observation	Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S;	3-5 years (*M* = 53.8 months, *SD* = 7.8 months)

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			ratings of school adjustment.					Denham et al., 2012)	
20	2013	Orta et al.	Examines the roles of emotional regulation and emotional dysregulation in mediating the associations of maternal responsiveness and effortful control with social competency and externalizing symptoms.	Turkey	Empirical Study	Both	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) translated to Turkish	*M* = 4.5 years, *SD* = .92 years
21	2013	Zarling et al.	Examines children's emotion dysregulation, children's appraisals, maternal psychological functioning, and harsh discipline as potential mediators in the putative link between exposure to intimate partner violence and poor child outcomes.	USA	Empirical Study	Both	Behavioural Observation	An emotional dysregulation coding system developed by authors	6-8 years (*M* = 6.9, *SD* = .90)
22	2014	Berkovits & Baker	Examines the extent to which emotion dysregulation is related to social problems across middle childhood among	USA	Empirical Study	Measure	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997)	ED assessed at 7, 8, and 9 years old

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			children with typical development and developmental delays.						
23	2014	Overgaard et al.	Examines whether early signs of anxiety and ADHD at 18 months predict symptoms of anxiety and ADHD at 3 years and whether emotional dysregulation at 18 months predicts co-occurring anxiety and ADHD at 3 years.	Norway	Empirical Study	Both	Parent Report	Three items taken from the Emotionality Activity Sociability (EAS) temperament measurement scale (Buss & Plomin, 1984)	ED assessed at 18 months
24	2015	Crowell et al.	Discusses emotional dysregulation across the life span and its implications for psychological and physical health.	USA	Literature Review	Definition	NA	NA	NA
25	2015	Pat-Horenczyk et al.	Examines maternal emotion regulation as a mediating factor between maternal posttraumatic stress symptoms and children's emotional dysregulation in mothers	Israel	Empirical Study	Both	Parent Report	Child Behaviour Checklist - Dysregulation Profile (CBCL-DP; Achenbach & Rescorla, 2000)	2-6 years (*M* = 46.98 months, *SD* = 14.10 months)

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			and children exposed to trauma.						
26	2016	Ren et al.	Examines whether language skills and emotion regulation are associated with social competence and whether the relationship between English skills and social competence is moderated by emotion regulation in Mandarin–English bilingual preschoolers.	Australia	Empirical Study	Both	Behavioural Observation and Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) and Emotional Dysregulation Coding System (Saarni, 1984)	36-69 months (*M* = 52.07, *SD* = 8.45)
27	2016	Williams & Sciberras	Examines the relationship among behavioural sleep problems, emotional dysregulation, and attentional regulation across early childhood for children with and without ADHD at 8-9 years old.	Australia	Empirical Study	Both	Parent Report	The Australian Temperament Scales (Infant and Child Version) Short-Form (Sanson, 1987)	ED assessed at 0-1 years old, 2-3 years old, 4-5 years old, 6-7 years old

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
28	2017	Berkovits et al.	Examines the stability of emotional regulation in children diagnosed with ASD and its relationship with other aspects of child development.	USA	Empirical Study	Both	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) and CBCL-Emotional Dysregulation Index (CBCL-EDI; Samson et al., 2014)	4-7 years old
29	2017	Hipson et al.	Examines associations between maternal agreeableness, child emotional dysregulation, and child social adjustment at school.	Canada	Empirical Study	Both	Parent Report	Emotionality and Soothability subscales of Colorado Child Temperament Inventory (CCTI; Buss & Plomin, 1984; Rowe & Plomin, 1977)	Kindergarten to Grade 1 (*M* = 67.78 months, *SD* = 10.81 months
30	2017	Norona & Baker	Examines the contributions of internal (e.g., cognitive ability) and external (e.g., caregiving styles) factors on emotional	USA	Empirical Study	Measure	Behavioural Observation and Parent Report	Dysregulation Coding System (Hoffman et al., 2006) and Emotion Regulation	ED assessed at 7 years old

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			dysregulation outcomes in middle childhood for children with developmental delays.					Checklist (ERC; Shields & Cicchetti, 1997)	
31	2018	Chan & Neece	Examines whether changes in parenting stress through Mindfulness-Based Stress Reduction (MBSR) predict changes in emotion dysregulation among children with developmental delays, as well as examines parenting behaviors that may mediate the impact of parenting stress on childhood emotion dysregulation.	USA	Empirical Study	Both	Behavioural Observation	Dysregulation Coding System (Hoffman et al., 2006)	2.5-5 years old (*M* = 4.18, *SD* = 1.01)
32	2018	Fenning et al.	Examines intrinsic and extrinsic predictors of emotional dysregulation in children diagnosed with ASD.	USA	Empirical Study	Measure	Behavioural Observation	Dysregulation Coding System (Hoffman et al., 2006)	4-11 years old (*M* = 6.39, *SD* = 1.95)

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
33	2018	Germain	Discusses the impact of integrating Occupational Therapy's theories of mutual regulation and emotional dysregulation into psychotherapy.	USA	Descriptive/Case Study	Definition	NA	NA	NA
34	2018	Quetsch et al.	Compares emotional regulation in families with children who exhibit externalizing behaviour problems with low-risk comparison families.	USA	Empirical Study	Measure	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997)	2-8 years old (*M*= 4.62; *SD* = 1.69)
35	2018	Reinke et al.	A Randomized Controlled Trial to assess the efficacy of the Incredible Years Teacher Classroom Management Program (IY TCM) on student social behavioural and academic outcomes.	USA	Empirical Study	Measure	Teacher Report	Emotional Dysregulation subscale of the Teacher Observation of Classroom Adaptation-Checklist (TOCA-C; Koth et al., 2009)	Kindergarten to Grade 3

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
36	2018	Wang et al.	Examines the trajectory of internalizing problems across middle childhood as well as understand its early predictors.	Australia	Empirical Study	Measure	Parent Report	Reactivity subscale of the Short Temperament Scale for Children (Sanson et al, 1994)	ED assessed at 4-5 years old, 6-7 years old
37	2019	Amédée et al.	Assesses the social adaptation of sexually abused children and tests whether child emotional regulation competencies mediate the association between child sexual abuse and two social outcomes (i.e., withdrawal and social difficulties).	Canada	Empirical Study	Both	Parent Report	Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997)	6-12 years old
38	2019	Ettekal & Ladd	Examines the development of aggressive victims (i.e., emotionally charged victims who engage in reactive and dysregulated forms of aggression) and their associations with	USA	Empirical Study	Both	Teacher Report	5 items from the Teacher Report Form (TRF; Olson et al., 2013).	Kindergarten to Grade 12

No	Year	Authors	Purpose of Article	Country	Type of Article	Definition /Measure	Type of Measure	Name of Measure	Age of Sample
			emotional dysregulation, withdrawal, moral disengagement, peer rejection, and friendships.						
39	2019	Thompson	Discusses a functionalist definition of childhood emotional dysregulation from a developmental perspective.	USA	Literature Review	Definition	NA	NA	NA

Quality Assessment

As the current systematic review focuses on conceptual issues (e.g., the terminology used by researchers to define childhood emotional dysregulation) rather than the results of interventions, a formal quality assessment was not performed. A wide range of study designs and theoretical works, considered to be lower quality with a high risk of bias, were included in the current review as they were believed to provide valuable insight. However, to improve the quality of the current review, studies were only included if they were published in peer reviewed journals.

Data Analysis

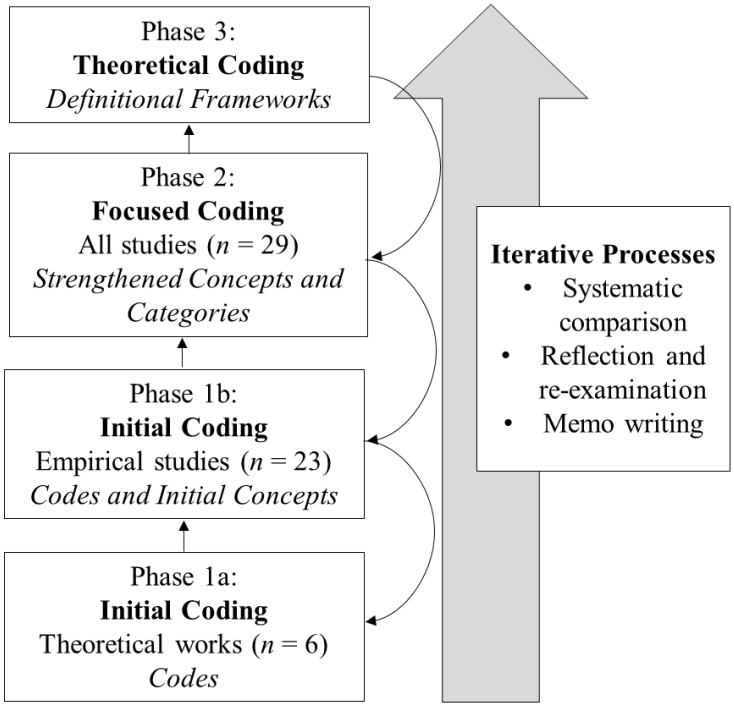
Grounded theory, a systematic qualitative research methodology, aided in the analysis of relevant data from the review's final list of full text articles (Glaser & Strauss, 1967). The approach was selected based on its applicability in the development of explanatory theoretical frameworks that are grounded in relevant empirical data. Although the aim of the current study was to develop a definitional framework rather than a theoretical one, the approach was deemed suitable for the current analysis as an in-depth understanding of the construct in question was required. The current review adopts Charmaz's (2003, 2006) epistemological perspective of grounded theory that is rooted in constructivism and pragmatism. This approach assumes that data and theories are "constructed" by the researcher as a result of interactions with sources of data (Charmaz, 2006).

Elements of a constructivist grounded theory approach that have been incorporated into the current review include (a) an iterative process whereby reflection and reexamination of the data occurred throughout the analytic process; (b) data gathering decisions that were made based on the research questions; (c) codes and categories that were created from the data; (d) theoretical development and comparison of cases that occurred during data collection and analysis; and (e) evidence of theoretical saturation (adapted from Hutchinson et al., 2010).

Data coding was carried out by the researcher using QSR International's NVivo (V.12) qualitative data analysis software. Articles that featured a definition of emotional dysregulation in early childhood (n = 29) were imported into NVivo and coded in three phases adopted from grounded theory methodology. Namely, initial, focused, and theoretical coding. Grounded theory coding has been described as an analytical process that is iterative in nature, whereby emergent codes and categories are repeatedly refined by being systematically compared to one another as new insights arise over time (Charmaz, 2006). The coding process is summarized in Figure 4.3.

Figure 4.3

Overview of the Data Coding Process



Initial coding started by coding the six articles that focused on emotional dysregulation in early childhood and were presumed to yield the greatest number of codes (i.e., literature reviews). Articles were read from beginning to end and segments that discussed emotional dysregulation in early childhood were coded line-by-line. Preliminary codes, or meaning labels, were assigned to relevant data, fracturing the data or breaking it

apart for further scrutiny. To avoid premature conceptualization at this stage, preliminary codes were kept as close to the data as possible by assigning codes that denoted action as opposed to themes (Charmaz, 2006). Asking questions about the data helped to identify the actions associated with the construct under investigation. Adapted from Charmaz's (2006) guidelines for line-by-line coding, questions included:

1) How is emotional dysregulation in early childhood defined?
2) How does emotional dysregulation in early childhood develop?
3) How does a child think, feel, or behave when emotionally dysregulated?
4) When, why, and how does emotional dysregulation in early childhood change?
5) What are the consequences of emotional dysregulation in early childhood?

Once the coding of theoretical works was completed, the initial coding process was repeated with the remaining articles (i.e., empirical studies). While coding, codes from empirical studies were compared to codes from literature views, taking note of any emergent patterns, such as similarities or differences within or across articles. Each time a code was identified in the data a node was created to represent it in NVivo. All the data that was found to be relevant to that code was subsequently stored in its node.

Initial coding was performed by two reviewers (i.e., the researcher and an independent reviewer). The researcher coded one hundred percent of articles that featured a definition of emotional dysregulation in early childhood while the independent reviewer coded ten percent of the articles that featured a definition of emotional dysregulation in early childhood to ensure inter-rater reliability. Both reviewers used Charmaz's (2006) guidelines that were adapted for line-by-line coding (e.g., How is emotional dysregulation in early childhood defined?) to code the full articles. Disagreements were resolved through a discussion between reviewers and an initial code was only included if an agreement was met.

Initial coding transitioned to focused coding once relationships started to emerge from the data. While initial coding breaks the data apart, focused coding starts to bring the data back together in a meaningful way through the emergence of abstract concepts. During this second phase of coding, all 29 articles were reread using the most frequent and significant initial codes to sift through the data. Through this process, related codes were collapsed and recorded as higher order categories, or focused codes. Categories were reviewed and refined by identifying which categories could be subsumed beneath other categories. This process was repeated until theoretical saturation was reached, and no additional material could be provided to the final list of categories.

Theoretical coding occurred as the culminating stage in data coding, where categories were integrated and synthesized to reveal two potential definitional frameworks for emotional dysregulation in early childhood. In the first proposed definitional framework, emotional dysregulation in early childhood is conceptualized as a continuous variable. In the second proposed definitional framework, emotional dysregulation in early childhood is conceptualized as a categorical variable. NVivo facilitated the theoretical coding process by creating a visual overview of how emergent categories related to one another. Specifically, the coding stripes function in NVivo that allows researchers to view all codes assigned to a segment of data was used to identify relationships between categories and generate subsequent lines of enquiry. For example, one of the most referenced categories in the data was “abnormal emotional reactivity”. To gain insight into how this concept related to other categories, coding stripes were turned on when reviewing all the data coded to “abnormal emotional reactivity”. In doing so, all associated categories were revealed and a deeper understanding of abnormal emotional reactivity in relation to emotional dysregulation in early childhood emerged.

Similarly, the comparison diagram function in NVivo was also used to explore relationships between categories by comparing similarities and differences in codes assigned between two articles. For example, the two articles that explicitly referred to emotional dysregulation in early childhood as a phenomenon that is separate and distinct from emotional regulation were compared using a comparison diagram. This function highlighted common codes and categories between articles that resulted in additional insight into the criteria that may distinguish emotional dysregulation in early childhood from emotional regulation.

Throughout the coding process, memo writing was used to facilitate the iterative processes of systematic comparison, reflection, and re-examination. Grounded theorists define memo writing in qualitative data analysis as a pivotal intermediate step between data collection and report writing. Essentially, memo writing is an informal analytic method that prompts researchers to analyse and reflect on their data and codes throughout the research process (Charmaz, 2006). For the current study, the memo function in NVivo was used to capture thoughts, make comparisons and connections, and ask questions as codes were developed. These memos subsequently served as a basis for discussions between the researcher and her primary advisor throughout the entire process of data analysis.

Results

From the final 39 articles that met the selection criteria for the current systematic review, 29 articles explicitly defined emotional dysregulation in early childhood while 32 articles featured a measure of childhood emotional dysregulation. Qualitative data analysis of the 29 articles that defined emotional dysregulation in young children generated five definitional categories and two potential definitional frameworks. From the 32 articles that measured emotional dysregulation in early childhood, 18 assessment tools were identified

and reviewed in relation to how childhood emotional dysregulation was defined by researchers. Results are elaborated on in the following sections.

Defining Emotional Dysregulation in Early Childhood

Qualitative data analysis revealed five categories that distinctively defined emotional dysregulation in early childhood. Definitional categories included: (a) Manifestation; (b) Dimensional construct; (c) Duration; (d) Impairment; and (e) Development. During the coding process (outlined in the Data Analysis section), definitional categories were integrated and synthesized to form two proposed definitional frameworks for emotional dysregulation in early childhood (Scenario A versus Scenario B). In this section, definitional categories are first discussed in detail before the two proposed definitional frameworks are presented. Definitional categories, concepts, and codes are summarized in Table 4.4.

Definitional Categories

The first category that defines emotional dysregulation in early childhood is manifestation or how symptoms of emotional dysregulation manifest in young children. According to the literature, when a child is emotionally dysregulated, emotional, cognitive, physical, and behavioural systems are impacted, resulting in specific symptoms (Keenan, 2000; Thompson, 2019). In terms of emotions, emotional dysregulation in early childhood is characterized by abnormal emotional reactivity (e.g., context inappropriate or constricted emotional responding), poor emotional appraisal, a lack of emotional awareness, and ineffective attempts at emotional regulation (Thompson, 2019). Emotional dysregulation applies to both positive and negative emotions that are high in intensity and overwhelming for the child (Miller et al., 2004; Orta et al., 2013). Emotional dysregulation in young children may manifest cognitively as attentional difficulties at school (Pat-Horenczyk et al., 2015) or physically as physiological disturbances (as indexed by heartrate and biochemical activity levels) and sleep difficulties (Field, 1994). In terms of behaviour, emotional dysregulation in young children is characterized by nonconstructive regulation strategies,

such as venting feelings through aggressive behaviour or tantrums (Ren et al., 2016), and a lack of behavioural self-management, whereby emotional responding interferes with goal-directed and interpersonal activities (Berkovits et al., 2016).

Table 4.4

Childhood Emotional Dysregulation Definitional Categories, Concepts, and Codes

Definitional Category	Concept	Codes
1. Manifestation	Emotional	Abnormal emotional reactivity High intensity Positive and negative emotions Context inappropriate responses Lack of regulation Overwhelmed Poor emotional appraisal Lack of emotional awareness Ineffective regulatory attempts
	Behaviour	Interferes with appropriate behaviour Venting behaviour Poor behavioural self-management Nonconstructive regulation strategies
	Cognitive	Attentional difficulties
	Physical	Physical disturbance
	Involves multiple systems	Involves multiple systems (e.g., emotional, cognitive, physical, behavioural)
2. Dimensional Construct		Constricted emotional responding Difficult recovery
3. Duration		Persistent
4. Impairment		Emotional distress Impairment
5. Development		Stable across time Develops in early childhood Pattern of unmodulated responses Multifaceted phenomenon

The literature also suggests that dysregulated emotional responding is dimensional in nature. On one end of the continuum, emotional responses can be intense and difficult to recover from (e.g., child responds with aggressive behaviour), while on the other end of the continuum, emotional responding can be "weak and constricted" (e.g., child shuts down and goes to sleep) (Keenan, 2000). Thompson (2019) discussed similar findings with two proposed patterns of emotional dysregulation in young children that ranged from undercontrolled/ambivalent to overcontrolled/unresponsive.

The literature also suggests that emotionally dysregulated children who struggle with intense or undercontrolled emotional responses require more time than others to return to a regulated state. Thus, duration of an episode also emerged as a defining feature of childhood emotional dysregulation. Essentially, a child is considered to be emotionally dysregulated if emotional responding inappropriately persists over a long period of time (Keenan, 2000; Thompson, 2019) and is generally difficult to recover from (Röll & Petermann, 2012; Thompson, 2019). Here, difficulty in recovery refers to emotional responding that endures after attempts at self-soothing and co-regulation with an attuned caregiver have been made (Coplan et al., 2001; Keenan, 2000).

Impairment also emerged as a defining feature of emotional dysregulation in early childhood. Based on the literature, childhood emotional dysregulation implies a pattern of unmodulated emotional responding that causes significant emotional distress (Keenan, 2000). Levels of emotional distress are high enough to impact motor, physiological, and biochemical levels (Field, 1994) and cause impairment (i.e., goal-directed activity is impeded) (Keenan, 2000; Thompson, 2019).

The final category that emerged from the literature was development or how emotional dysregulation develops in young children. More specifically, the literature suggests that emotional dysregulation often develops in early childhood and, without intervention, can

be stable across time (Keenan, 2000). Crowell and colleagues (2015) described persistent emotional dysregulation as "a problem that emerges in early childhood, potentiates psychopathology by adolescence, and worsens in adulthood" (p. 92). However, as emotional dysregulation is a multifaceted phenomenon that involves multiple systems (i.e., emotional, cognitive, physical, and behavioural systems), pinpointing when and how it develops can be a complex process (Thompson, 2019).

Two Definitional Frameworks

In the first proposed definitional framework (Scenario A), emotional dysregulation in early childhood is conceptualized as a continuous variable. Essentially, childhood emotional dysregulation is defined as a multifaceted phenomenon that is on the extreme end of a continuum that ranges from high to low regulation (i.e., synonymous with low emotional regulation). High emotional regulation for young children involves age-appropriate emotional recognition and acceptance, the ability to access self-soothing strategies, and the ability to manage impulsive behaviours and behave in accordance with desired goals (Gratz & Roemer, 2004; Southam-Gerow & Kendall, 2001). Thus, low emotional regulation or emotional dysregulation in young children is characterized by poor emotional awareness and appraisal, ineffective regulatory attempts, and a lack of behavioural self-management. Emotional dysregulation occurs when children experience positive or negative emotions that are high in intensity and impact multiple systems (e.g., emotional, cognitive, physical, behavioural systems). Emotional dysregulation in young children ultimately results in impairment as it interferes with appropriate goal-directed behaviour. Scenario A is illustrated in Figure 4.4.

In the second proposed definitional framework (Scenario B), emotional dysregulation in early childhood is conceptualized as a categorical variable. Essentially, childhood emotional dysregulation is defined as a multifaceted phenomenon that is separate and distinct from emotional regulation. Here, emotional dysregulation refers to a persistent pattern of

unmodulated emotional responses that develops in childhood and is stable across time. It is characterized by abnormal emotional reactivity that impacts multiple systems (e.g., emotional, cognitive, physical, behavioural systems) and nonconstructive attempts at emotional regulation (e.g., overcontrolled or undercontrolled emotional regulation strategies). Emotional dysregulation occurs when children experience positive or negative emotions high in intensity and are overwhelming. It ultimately results in impairment as it interferes with appropriate goal-directed behaviour. Scenario B is illustrated in Figure 4.5.

Figure 4.4

Scenario A: Emotional Dysregulation in Early Childhood as a Continuous Variable

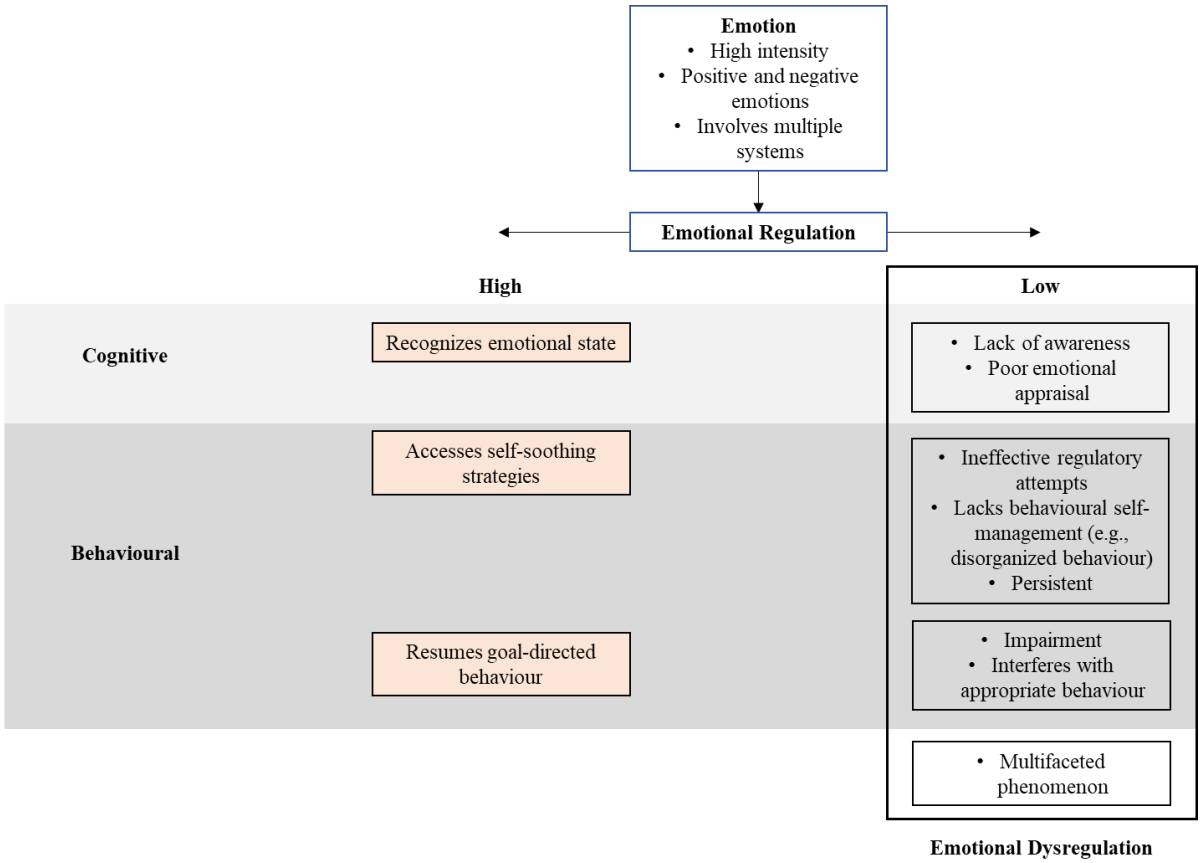
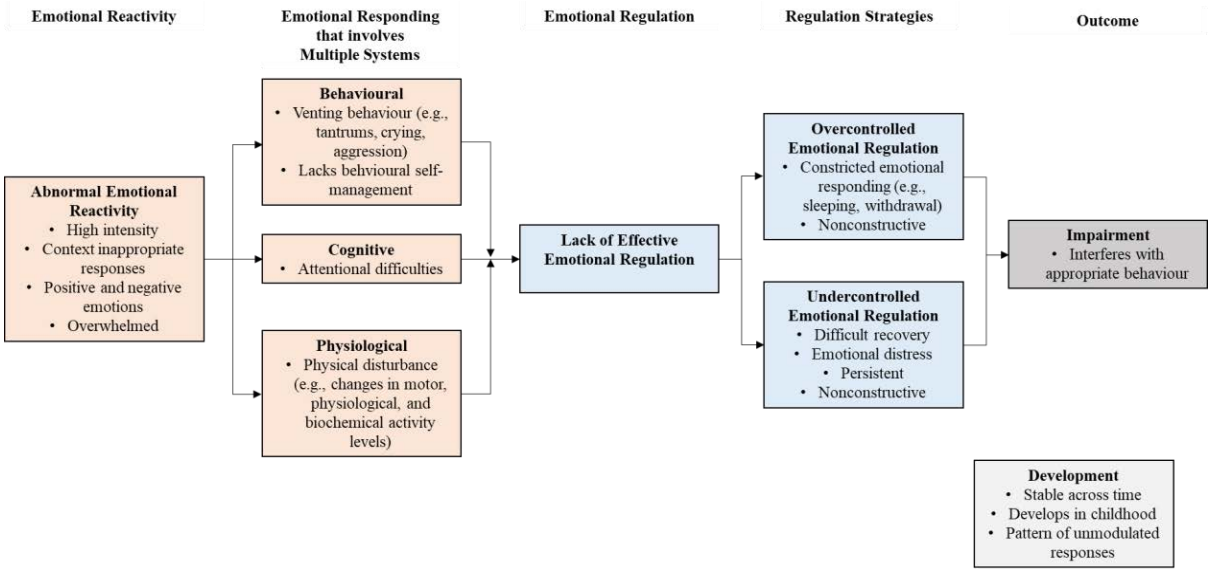


Figure 4.5

Scenario B: Emotional Dysregulation in Early Childhood as a Categorical Variable



Measures of Emotional Dysregulation in Early Childhood

The second aim of the current study was to identify and review all measures of childhood emotional dysregulation featured in the final 39 articles included in the systematic review. From the final 39 articles, 32 articles featured 18 measures of emotional dysregulation in early childhood. These included nine behavioural observation tools (50%), five parent report measures (27.78%) and four teacher report measures (22.22%). Each measure is described in detail in the following sections to provide the background necessary to assess the relationship between how childhood emotional dysregulation is defined and measured in the literature. An overview of the measures of childhood emotional dysregulation is provided in Table 4.5. A summary of the psychometric properties of the measures is included in Appendix C.

Behavioural Observation

Nine behavioural observation tools were used to assess emotional dysregulation in children between 9 months and 11 years old across 12 empirical studies. The most frequently used assessment tool was the Dysregulation Coding System (Hoffman et al., 2006), an observational tool that measures emotional dysregulation in children by assessing the type, duration, and intensity of emotional expressions as well as the lability and soothability exhibited by the child. Children are rated on a 5-point scale (0 = *no evidence of dysregulation*, 4 = *significant dysregulation*) while faced with an undesirable situation that requires them to regulate their emotions (e.g., being told to clean up the toys they were playing with). According to developers of the coding system, a score of 1 represents a low degree of emotional dysregulation characterized by (a) one or two brief emotional expressions that were inappropriate to the situation but the child was able to regroup on their own, or (b) one or two brief instances of emotional lability and/or variability in intensity of emotional expression but the child recovered quickly from the inappropriate emotional experience. On the other hand, a score of 4 represents a very high degree of emotional

dysregulation characterized by (a) several intense, frequent emotional expressions where the child was unable to regroup, or (b) very labile, extreme variability in intensity of emotion, but the child was very slow to recover from the emotional experience (Chan & Neece, 2018).

The next observational tool used was the emotional dysregulation subscale of the Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S; Denham et al., 2012), an 18-item observational tool used to assess children's social-emotional behaviour in naturalistic settings. According to the developers of the MPAC-R/S, a child is considered to be emotionally dysregulated if he or she is observed to demonstrate any one of the following: (a) context-related interpersonal aggression (verbal or physical) (i.e., someone does something emotionally arousing, to which the child responds with aggression, an emotionally arousing preceding event must be observed); (b) hits, kicks, shoves, knocks over, or throws objects (emotionally arousing preceding event must be observed); or (c) unprovoked physical interpersonal aggression (Herndon et al., 2013).

The third observational tool used was the Person-Oriented Classification System (Cummings, 1987), a procedure designed to observe children's emotional and behavioural responses and regulation strategies in response to interadult anger. Maughan and Cicchetti (2002) used the Person-Oriented Classification System to code preschooler’s emotions and behaviours in response to simulated affective interactions between the mother and a research assistant (i.e., friendly, angry, and reconciliatory). Sixteen discrete child emotional and behavioural responses were coded as either being present or absent during the 15-minute simulation. These responses included sadness/dysphoria, crying, whining, freezing, anxiety/fear, anger, physical aggression, verbal aggression, object-related aggression, dysregulated aggression (aggression that had a disorganized and uncontrolled quality), preoccupation, verbal concern, inquiries about mother's feelings, helping/instructing mother, comforting/protecting mother, and smiling/laughing (Cummings, 1987).

Table 4.5

Measures of Childhood Emotional Dysregulation

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
Observational Methods						
1	Emotional Dysregulation Coding System	Saarni (1984)	(1) Negative behaviour (e.g., frowning)	Children's responses coded for negative behaviour during a disappointing gift task. Each behaviour that was observed was coded as 1 point and summed.	3-5 years	1
2	Person-Oriented Classification System	Cummings (1987)	(1) Elevated rates of negative and positive emotionality (2) Prolonged rates of negative and positive emotionality	15-minute simulated affective interaction between mother and research assistant coded for 16 discrete child emotional and behavioural responses.	3-5 years	1
3	Emotional Dysregulation Coding System	Morrell & Murray (2003)	(1) Distress (2) Irritability	Infant behaviour coded for distress and irritability while completing the A not B task (i.e., a small toy is hidden under one of two cups). Distress and irritability scores are combined with higher scores indicating a greater degree of emotional dysregulation.	9 months	1
4	Emotionally Negative Dysregulation Coding System	Miller et al. (2004)	(1) Overwhelmed by negative emotions (2) Disorganized behaviour	Children's behaviour during 20 minutes of free play coded for seven emotion displays and	3-5 years	1

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
				dysregulation states. Coding yielded a continuous stream of behaviour states, which were reduced to yield a proportional duration score.		
5	Emotional Dysregulation Coding System	NICHD Early Child Care Research Network (2004)	(1) Defiant noncompliance (2) Negative affect	Children's emotional and behavioural responses during a laboratory clean up task and interaction with their mothers are rated on a 5-point scale (1 = *not at all characteristic*; 5 = *very characteristic*). Higher scores suggest greater emotional dysregulation.	2-3 years	1
6	Dysregulation Coding System	Hoffman et al. (2006)	(1) Type, duration, and intensity of emotional expressions (2) Lability (3) Soothability	Emotion dysregulation subscale. Children are rated on a 5-point scale (0 = *no evidence of dysregulation*, 4 = *significant dysregulation*) while faced with an undesirable situation that required them to regulate their emotions. Ratings are based on type, duration, and intensity of emotional expressions, lability, and soothability.	2.5-11 years	4

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
7	Emotion Dysregulation Index	Williford et al. (2007)	(1) Emotional reactivity (2) Emotional regulation skills	Children's behaviour coded for 7 emotional and behavioural responses on 3- to 7-point scales when faced with a frustrating task. Higher scores suggest greater emotional dysregulation.	2 years	1
8	Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S)	Denham et al. (2012)	(1) Interpersonal aggression - Context-related interpersonal aggression - Hits, kicks, shoves, knocks over, or throws objects - Unprovoked physical interpersonal aggression	Children's behaviour in classroom setting rated on emotional dysregulation subscale (3 items marked as either present or absent). Child is considered to be emotionally dysregulated if he or she displays any form of interpersonal aggression.	3-5 years	1
9	Emotional Dysregulation Coding System	Zarling et al. (2013)	(1) Negative emotional and behavioural responses across three settings (i.e., independent tasks, parent-child interaction, peer interaction)	Children's behaviour during independent laboratory tasks coded for 13 behaviours (marked as either present or absent). Children's behaviour during parent-child interaction coded for an additional 13 behaviours on a 5-point scale (ranging from "never" to "very often"). Children's behaviour during peer interaction coded for	6-8 years	1

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
				an undisclosed number of behaviours on a 5-point scale (ranging from "never" to "very often").		
Parent Report Measures						
10	The Colorado Child Temperament Inventory (CCTI)	Buss & Plomin (1984); Rowe & Plomin (1977)	(1) Negative emotionality (2) Soothability	Combined scores from emotionality (5 items) and soothability (5 items) subscales.	3-7 years	4
11	The Australian Temperament Scales (Infant and Child Version) Short-Form	Sanson et al. (1987)	(1) Emotional reactivity	4-item reactivity subscale. Items were rated on a 6-point scale (1 = a*lmost never*, 6 = a*lmost always*). Higher scores suggest greater emotional dysregulation.	4-7 years	2
12	The Emotion Regulation Checklist (ERC)	Shields & Cicchetti (1997)	(1) Emotional regulation (2) Lability/Negativity	Emotional dysregulation was measured by combining emotional regulation (10 items) and lability/negativity (14 items) subscale scores or with individual lability/negativity subscale scores. Items are scored on a 4-point scale (1 = *never*, 5 = *almost always*). Higher lability/negativity subscale scores suggested greater emotional dysregulation.	6-12 years	7

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
13	The Child Behaviour Checklist-Dysregulation Profile (CBCL-DP)	Althoff et al. (2010)	(1) Attention (Cognitive) (2) Aggression (Behavioural) (3) Anxiety/Depression (Affective)	Combined scores from the Attention, Aggression, and Anxiety/Depression subscales of the Child Behaviour Checklist (CBCL; Achenbach, 1991). Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Higher scores suggest a greater degree of emotional dysregulation.	1.5-5 years	1
14	Child Behaviour Checklist-Emotional Dysregulation Index (CBCL-EDI)	Samson et al. (2014)	(1) Behaviours associated with emotional dysregulation (e.g., screaming, arguing, crying, destroying things)	18 items taken from the CBCL. Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Scores are totalled and higher scores suggest a greater degree of emotional dysregulation.	6-16 years	1
Teacher Report Measures						
15	The Early School Behaviour Scale (ESBS)	Caldwell & Pianta (1991)	(1) Low threshold for activating experiences of emotion (2) Difficulty modulating the expression of emotion	4-item emotional dysregulation subscale. Items are rated on a 4-point scale to (1 = *hardly ever*, 4 = *almost always*). Higher scores suggest a greater degree of emotional dysregulation.	4-7 years	1
16	Teacher's Report Form (TRF)	Olson et al. (2013)	(1) Screaming (2) Irritability	5-item emotional dysregulation subscale. Items are rated on a 3-	4-18 years	1

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Number of Items, Format	Age	No. of Studies
			(3) Sudden mood changes (4) Temper displays (5) Jealous behaviour	point scale (0 = *not true of the student,* 1 = *somewhat or sometimes true of the student*, 2 = *often or very true of the student*). Higher scores suggest a greater degree of emotional dysregulation.		
17	The Behaviour Questionnaire for Two- to Six-Year-Olds, Modified Version (BQTSYO-M)	Thijs et al. (2004)	(1) Easily upset (2) Cries easily (3) Easily worried (4) Confused when unexpected things happen (5) Easily afraid	5-item emotional dysregulation subscale. Items are rated on a on a 4-point scale (1 = *absolutely not characteristic*, 4 = *very characteristic*). Higher scores suggest a greater degree of emotional dysregulation.	4-6 years	1
18	The Teacher Observation of Classroom Adaptation-Checklist (TOCA-C)	Koth et al. (2009)	Not indicated.	Emotional dysregulation subscale (number of items not disclosed). Items are rated on a 6-point scale (1 = *never*, 6 = *almost always*). Higher scores suggest a greater degree of emotional dysregulation.	4-11 years	1

Children were then grouped according to whether (a) they exhibited generally low, moderate, or high levels of emotional and behavioural reactivity in response to the simulation procedure; (b) their emotional and behavioral responses were congruent with procedural demands; (c) they were able to effectively modulate the intensity and duration of their emotional and behavioural response; and (d) their subjective and/or overt responses suggested either an overcontrol or undercontrol of their emotions. Children were considered to be emotionally dysregulated if they exhibited elevated and prolonged rates of both negative and positive emotionality in response to the angry exchange that was often dysregulated and extended into the reconciliatory exchange and post-reconciliation neutral periods.

The fourth observational coding system was adapted from Miller and Olson (2000) and used to code seven mutually exclusive, exhaustive, time-based emotion displays and dysregulation states in preschool-aged children. Emotional displays included Neutral, Positive, Mild Negative, Sadness, and Anger, while dysregulation states were Emotionally Negative Dysregulation and Hyperactive Dysregulation. In a study conducted by Miller and colleagues (2004), coders recorded the beginning and end of each state for 20 minutes while observing children engaged in free play in their classrooms. Coding yielded a continuous stream of behaviour states, which were reduced to yield a proportional duration score. According to the developers of this coding system, emotionally negative dysregulation is defined as being overwhelmed by negative emotion (e.g., hysterical sobs, thrashing body, temper tantrum) and the child is so sad, upset, or angry that emotions disorganize behaviour. Hyperactive dysregulation, on the other hand, is defined as a high level of motor activity with the behaviour being inappropriate for a classroom setting (e.g., fast, out-of-control running, yelling, bumping peers, shoving furniture) but the child is emotionally neutral or positive (Miller et al., 2004).

The fifth observational tool was the Emotion Dysregulation Index, a 7-item coding system used to assess emotional dysregulation in young children (Williford et al., 2007). The Emotion Dysregulation Index is made up of items that assess both emotional reactivity and emotional regulation abilities when a child is faced with a frustrating task. More specifically, children's behaviours are coded for distress (i.e., pouting, fussing, whining, screaming, crying, or throwing a tantrum), negative reactivity (ranging from no emotional distress to extreme distress), episode affect (ranging from high distressed affect to extreme joy), intensity of behaviour, positive regulatory behaviour (composite of distraction and self-stimulating behaviour scores), negative regulatory behaviour (composite of help-seeking and escape scores), and global regulation (i.e., the use of behavioural skills in an effort to decrease distress during the frustrating task ranging from no control to well regulated). Episode affect, positive regulatory behaviour, and global regulation were reversed scored. Higher scores on the Emotion Dysregulation Index indicated greater dysregulation (Williford et al., 2007).

The sixth behavioural observational tool was a coding system developed by Saarni (1984) to assess children's emotional responses. Saarni's (1984) coding system was used in a Chinese study to assess children's responses to a disappointing gift task (i.e., children were told that they would receive a "cool gift" but received a block of wood instead) (Ren et al., 2016). Children's behaviours were coded as either positive (e.g., smiling), negative (e.g., frowning), or transitional. Each behaviour that was observed was coded as 1 point and added to the positive or negative sum. For this particular study, the authors measured child emotional dysregulation by combining negative scores generated from the disappointing gift task with Z scores from the lability/negativity subscale of the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a parent-report measure used to assess emotional

regulation in children between 6 and 12 years old. The ERC is described in greater detail in the following section (i.e., parent report measures).

The seventh observational measure of child emotional dysregulation was developed by Morrell and Murray (2003). In this study, 9-month-old babies were assessed for emotional dysregulation while completing the A not B task (i.e., a small toy is hidden under one of two cups) over six trials. During the task, all marked instances of infant distress or irritability (i.e., crying and back arching) were recorded, summed and then divided by the total number of trials, generating an index score representing mean infant emotional dysregulation per trial (Morrell & Murray, 2003). Higher scores indicated a greater degree of emotional dysregulation.

The eighth observational measure was a coding system developed by NICHD Early Child Care Research Network (1998, 2004). Emotional dysregulation in 2- to 3-year-olds was assessed by observing emotional and behavioural responses during a laboratory clean up task and interaction with their mothers (NICHD Early Child Care Research Network, 2004). During the 5-minute laboratory clean up task, children's behaviours were coded on a 5-point scale (1 = *not at all characteristic*, 5 = *very characteristic*) for defiant noncompliance and negative affect. Children's behaviours were later coded again for negative affect while interacting with their mothers during a 15-minute play session. Children who received a score of ≥ 3 for either defiant noncompliance or negative affect during either task were classified as emotionally dysregulated.

The final observational measure used three indicators to assess emotional dysregulation in children (Zarling et al., 2013). First, children's behaviours during various laboratory tasks (e.g., a communication task, social problem-solving task, free play, clean up) were coded for 13 specific behaviours (e.g., anxious/fearful, angry/irritable, cooperative, and child screamed/yelled during the appointment) by a team of trained coders from Oregon

Social Learning Centre (OSLC). Behaviours were marked as either present or absent. Next, parent-child interactions were coded on 13 items that were based on OSLC coders' global impressions of the child's affect and behaviour. Items, such as "child seemed frustrated or confused", "child was negative or critical", and "child was angry or irritable", were rated on a 5-point scale ranging from "never" to "very often". The final indicator was based on OSLC coders' global ratings of child behaviour during a 30-minute session of a child interacting with an age- and gender-matched peer. Interaction included a cooperative task, a competitive task, and free play. Items, such as "retaliated" and "complained about losing" were rated on a 5-point scale ranging from "never" to "very often". A summative index score was established based on three indicators of child emotional dysregulation. Zarling et al. (2013) did not list specific items for each indicator.

Parent Report Measures

Five parent report measures were used to assess emotional dysregulation in children from 1.5 to 12 years old across 14 empirical studies. The most frequently used was The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a 24-item parent-report measure used to assess emotional regulation and dysregulation in children between 6 and 12 years old. The ERC examines dysregulated affect and appropriate emotional expression with two subscales, lability/negativity (14 items) and emotional regulation (10 items) respectively. The emotion regulation subscale (ERC-ER) assesses overall mood, the ability to label and express emotions, and the ability to appropriately display emotions in a variety of social situations. Items are scored on a 4-point scale (1 = *never*, 5 = *almost always*), with higher scores reflecting greater emotion regulation abilities. The lability/negativity subscale (ERC-LN) assesses emotional flexibility, rapid changes in mood states, impulsivity, and dysregulation of positive and negative emotions. Items are also scored on a 4-point scale (1 = *never*, 5 = *almost always*), with higher scores reflecting greater emotion regulation

difficulties. ERC-LN scores were used collectively in some studies as a measure of childhood emotional dysregulation (Berkovits & Baker, 2014; Berkovits et al., 2017). In some other studies, scores from both ERC-ER and ERC-LN subscales were merged, with higher scores suggesting good emotional regulation competencies and lower scores suggesting emotional dysregulation (Amédée et al., 2019).

The next most frequently used parent report measure was The Colorado Child Temperament Inventory (CCTI; Buss & Plomin, 1984; Rowe & Plomin, 1977). The CCTI measures parental perceptions of a child's temperamental characteristics, such as emotionality, soothability, activity level, and shyness. It was developed based on Buss and Plomin's (1975) temperament theory of personality development in an attempt to better understand personality in young children. Emotional dysregulation has been measured in children between 3 to 7 years old by combining scores from the CCTI's subscales of Emotionality (5 items, e.g., "Child often fuses and cries") and Soothability (5 items, reversed-scored, e.g., "When upset by an unexpected situation, child quickly calms down") (Coplan et al., 2001; Hipson et al., 2017; Rubin et al., 1995).

The Child Behaviour Checklist-Dysregulation Profile (CBCL-DP; Althoff et al., 2010) is a parent-report measure developed to detect dysregulation in children aged 1.5 to 5 years. The CBCL-DP combines scores from the Attention, Aggression, and Anxiety/Depression subscales of the Child Behaviour Checklist (CBCL; Achenbach, 1991), a parent-report measure designed to assess problem behaviours in children between 6 to 16 years old. Developers of the CBCL-DP believe that dysregulation, or difficulties with self-regulatory behaviour, occurs across three domains of regulation: Affective (Anxiety/Depression), Behavioural (Aggression), and Cognitive (Attention). As it draws from both the Internalizing and Externalizing subscales of the CBCL, the CBCL-DP is believed to capture both developmental and behavioural issues associated with emotional regulation

deficits in young children (Pat-Horenczyk et al., 2015). Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Scores from CBCL-DP subscales were totalled and used as a continuous variable, where higher scores suggest a greater degree of emotional dysregulation.

The Child Behaviour Checklist-Emotional Dysregulation Index (CBCL-EDI; Samson et al., 2014) is an 18-item parent-report questionnaire initially developed to measure emotional dysregulation in children diagnosed with Autism Spectrum Disorder (ASD). CBCL-EDI items were selected based on expert ratings from the Child Behaviour Checklist (CBCL; Achenbach, 1991), a parent-report measure designed to assess problem behaviours in children between 6 to 16 years old. Twenty-three clinicians and experts working in the field of child psychiatry and emotion regulation research rated each CBCL item on relevance (to childhood emotional dysregulation) and confidence (in their selection). The resultant 18-item questionnaire measured behaviours believed to be associated with childhood emotional dysregulation, such as screaming, arguing, crying, and destroying things. Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Scores are totalled and used as a continuous variable, where higher scores suggest a greater degree of emotional dysregulation.

The Australian Temperament Scales (Infant and Child Version) Short-Form (Sanson et al, 1987) is a parent-report measure developed as part of the Australian Temperament Project, a major longitudinal study examining the development of children in Victoria, Australia between 1983 and 2000. The 4-item reactivity subscale of the Australian Temperament Scales (Infant and Child Version) Short-Form has been used by researchers to measure emotional dysregulation in children between 4 to 7 years old (Wang et al., 2018; Williams & Sciberras, 2016). Items that included, “This child… continues to cry in spite of several minutes of soothing, when angry is difficult to sidetrack, has ‘moody’ off days when he/she is irritable all day”, were rated on a 6-point scale (1 = *almost never*, 6 = a*lmost*

always). Scores were summed, and averaged, with higher scores suggesting greater emotional dysregulation.

Teacher Report Measures

Four teacher report measures were used in four empirical studies to measure emotional dysregulation in children between four to eight years old. These measures consisted of items taken from established behavioural checklists that have been used to measure disruptive externalizing problems associated with childhood emotional dysregulation, such as aggressive behaviour and attention problems. The first measure was a subscale of the Teacher's Report Form (TRF; Achenbach & Rescorla, 2001), a 112-item questionnaire that assesses problem behaviour, academic performance, and adaptive functioning in children between six to eighteen years old. Developed by Olson and colleagues (2013), the 5-item subscale of the TRF measures emotional dysregulation by assessing screaming, irritability, sudden mood changes, temper displays, and jealous behaviour in a classroom setting. Items are rated on a 3-point scale (0 = *not true of the student,* 1 = *somewhat or sometimes true of the student*, 2 = *often or very true of the student*) with higher scores suggesting greater emotional dysregulation (Ettekal & Ladd, 2019).

The second teacher report measure of childhood emotional dysregulation consisted of four items from the Early School Behaviour Scale (ESBS; Caldwell & Pianta, 1991). The ESBS is a 40-item questionnaire that is rated on a 4-point scale to (1 = *hardly ever*, 4 = *almost always*) to highlight behavioural, social, and emotional difficulties in children between four to seven years old. The four items selected to measure emotional dysregulation in children included two items that indicated a low threshold for activating experiences of emotion (e.g., "is easily upset by failures", "feels easily hurt, sensitive") and two items that indicated difficulty modulating the expression of emotion (e.g., "cries easily", "has temper

tantrums"). Higher scores suggested greater emotional dysregulation (Giesbrecnt et al., 2011).

The third teacher report measure was the emotional dysregulation subscale of the Behaviour Questionnaire for Two- to Six-Year-Olds, Modified Version (BQTSYO-M; Thijs et al., 2004). The BQTSYO-M is a 27-item questionnaire, with 13 items reflecting externalizing behaviours and 14 items reflecting internalizing behaviours, that is rated on a 4-point scale (1 = *absolutely not characteristic*, 4 = *very characteristic*). The emotional dysregulation subscale is one of three subscales (emotional dysregulation, social inhibition, solitary behaviour) and is characterized by five items, that include "easily upset", "cries easily", "easily worries", "confused when unexpected things happen", and "easily afraid". Higher scores suggest greater emotional dysregulation (Thijs et al., 2004).

The final teacher report measure of childhood emotional dysregulation consisted of items from the Teacher Observation of Classroom Adaptation-Checklist (TOCA-C; Koth et al., 2009). The TOCA-C is a 21-item measure of child behaviour that assesses disruptive behaviours, concentration problems and prosocial behaviours. The authors of this particular study did not identify the specific items from the TOCA-C that were used to measure emotional dysregulation in its participants (Reinke et al., 2018).

Relationship Between Measures and Definitional Categories

The final aim of the current systematic review was to assess the relationship between how emotional dysregulation in early childhood is defined and measured by researchers. From the 18 measures of childhood emotional dysregulation identified in the current systematic review, 16 measures (i.e., 8 behaviour observation methods, 5 parent reports, 3 teacher reports) addressed three of the five categories that distinctively defined emotional dysregulation in early childhood (i.e., manifestation, duration, distress). The most frequently addressed definitional category was manifestation, where measures assessed how emotional

dysregulation in young children manifests emotionally, behaviourally, and cognitively. Two measures of childhood emotional dysregulation addressed the definitional category of duration, or whether dysregulated responding persists over a long period of time (Cummings, 1987; Hoffman et al., 2006). Only one measure of childhood emotional dysregulation addressed the definitional category of distress in 9-month-old babies (Morrell & Murray, 2003). The remaining definitional categories, dimensional construct and development, were not addressed by the current measures. Table 4.6 provides an overview of the measures of childhood emotional dysregulation, definitions provided by authors, as well as associated definitional categories from the current project.

Table 4.6

Summary of Measures of Emotional Dysregulation in Early Childhood, Definitions, and Associated Definitional Categories

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
1	The Colorado Child Temperament Inventory (CCTI)	Buss & Plomin (1984); Rowe & Plomin (1977)	(1) Negative emotionality (2) Soothability	(1) Negative emotional unsoothability (Rubin et al., 1995) (2) Negative emotionality and difficulty in soothing (Coplan et al., 2001) (3) Deficit in the ability to modify emotional responses as a result of underlying neurobiological dysfunctions and/or temperament traits (Overgaard et al., 2014) (4) A combination of heightened reactivity and difficulty with regulation (Hipson et al., 2017)	(1) Duration - *Persistent*
2	Emotional Dysregulation Coding System	Saarni (1984)	(1) Negative behaviour (e.g., frowning)	(1) The use of nonconstructive means to regulate emotions (Ren et al., 2016)	None
3	Person-Oriented Classification System	Cummings (1987)	(1) Elevated rates of negative and positive emotionality	None	(1) Manifestation (Emotional)

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
			(2) Prolonged rates of negative and positive emotionality		- *Positive and negative emotions* - *Abnormal reactivity* (2) Duration - *Persistent*
4	The Australian Temperament Scales (Infant and Child Version) Short-Form	Sanson et al. (1987)	(1) Emotional reactivity	(1) The opposite of emotional regulation (Sanson et al., 1987)	(1) Manifestation (Emotional) - *Abnormal reactivity*
5	The Early School Behaviour Scale (ESBS)	Caldwell & Pianta (1991)	(1) Low threshold for activating experiences of emotion (2) Difficulty modulating the expression of emotion	(1) Expressions of frustration and anger, such as temper tantrums, crying, and whining (Geisbrecht et al., 2011)	(1) Manifestation (Emotional) - *Lack of regulation* - *Ineffective regulatory attempts*
6	The Emotion Regulation Checklist (ERC)	Shields & Cicchetti (1997)	(1) Emotional regulation (2) Lability/Negativity	(1) Problematic expressions of negative emotions (e.g., reactivity, intensity, lability) (Brown & Ackerman, 2011) (2) Emotional responses, both positive and negative, have high intensity, rapid rise, and arise in a number of situations that they feel to meet contextual demands	(1) Manifestation (Emotional, Behavioural, Involves Multiple Systems) - *Abnormal reactivity* - *Venting behaviour* - *Context inappropriate responses* - *Positive and negative emotions*

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
				and/or expectations (Orta et al., 2013) (3) The use of nonconstructive means to regulate emotions (Ren et al., 2016) (4) Emotional responses that do not fall within the social norms of appropriate conduct (Amédée et al., 2018)	- *Lack of emotional awareness* - *Poor behavioural self-management*
7	Teacher's Report Form (TRF)	Achenbach & Rescorla (2001)	(1) Screaming (2) Irritability (3) Sudden mood changes (4) Temper displays (5) Jealous behaviour	(1) Emotional overreactivity stemming from anger and irritability (Ettekal & Ladd, 2019)	(1) Manifestation (Behavioural) - *Venting behaviour*
8	Emotional Dysregulation Coding System	Morrell & Murray (2003)	(1) Distress (2) Irritability	None	(1) Impairment - *Emotional distress*
9	Emotionally Negative Dysregulation Coding System	Miller et al. (2004)	(1) Overwhelmed by negative emotions (2) Disorganized behaviour	(1) Overwhelmed by negative emotion (e.g., hysterical sobs, thrashing body, temper tantrums); child is so sad, upset, or angry that emotions disorganize behaviour (Miller et al., 2004)	(1) Manifestation (Emotional, Behavioural, Involves Multiple Systems) - *Overwhelmed* - *Poor behavioural self-management*

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
10	Emotional Dysregulation Coding System	NICHD Early Child Care Research Network (2004)	(1) Defiant noncompliance (2) Negative affect	(1) Strong, persistent negative affect (NICHD Early Child Care Research Network, 2004)	(1) Manifestation (Behaviour) - *Venting behaviour*
11	The Behaviour Questionnaire for Two- to Six-Year-Olds, Modified Version (BQTSYO-M)	Thijs et al. (2004)	(1) Easily upset (2) Cries easily (3) Easily worried (4) Confused when unexpected things happen (5) Easily afraid	(1) Dysregulation of affect and a fearfulness of a more general nature (Thijs et al., 2004)	(1) Manifestation (Emotional) - *Abnormal reactivity*
12	Dysregulation Coding System	Hoffman et al. (2006)	(1) Type, duration, and intensity of emotional expressions (2) Lability (3) Soothability	(1) Involves emotional reactions (i.e., behaviours that reflect the emotion and its qualities) and behavioural reactions (i.e., behavioural self-management during a significant emotional experience and how the behaviour relates to the achievement of one's goals) (Baker et al., 2007) (2) Dysfunction in regulatory abilities (Chan & Neece, 2018)	(1) Manifestation (Emotional) - *High intensity* - *Context inappropriate responses* - *Abnormal reactivity* (2) Duration - *Persistent*

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
13	Emotion Dysregulation Index	Williford et al. (2007)	(1) Emotional reactivity (2) Emotional regulation skills	(1) A child's inability to manage or inhibit their emotions in times of distress (Williford et al., 2007)	(1) Manifestation (Emotional) - *Abnormal reactivity* - *Ineffective regulatory attempts* - *Lack of regulation*
14	The Teacher Observation of Classroom Adaptation-Checklist (TOCA-C)	Koth et al. (2009)	Not indicated.	None	None
15	The Child Behaviour Checklist-Dysregulation Profile (CBCL-DP)	Althoff et al. (2010)	(1) Attention (Cognitive) (2) Aggression (Behavioural) (3) Anxiety/Depression (Affective)	(1) Does not know how to monitor his or her own feelings (Pat-Horenczyk et al., 2015)	(1) Manifestation (Emotional, Behavioural, Cognitive, Involves Multiple Systems) - *Attentional difficulties* - *Venting behaviour* - *Nonconstructive regulation strategies* - *Abnormal reactivity*
16	Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S)	Denham et al. (2012)	(1) Interpersonal aggression - Context-related interpersonal aggression	(1) Not the absence of emotional regulation, but is distinct from more successful regulation	(1) Manifestation (Behaviour) - *Venting behaviour* - *Nonconstructive regulation strategies*

No.	Measure	Author (Year)	Indicators of Emotional Dysregulation	Definition of Emotional Dysregulation in Article	Category, (Concept), and Code Measured
			- Hits, kicks, shoves, knocks over, or throws objects - Unprovoked physical interpersonal aggression	techniques (Herndon et al., 2013)	
17	Emotional Dysregulation Coding System	Zarling et al. (2013)	Negative emotional and behavioural responses across three settings (i.e., independent tasks, parent-child interaction, peer interaction)	(1) A lack of effective emotional regulation in the form of undercontrolled and overcontrolled emotional reactions (Zarling et al., 2013)	(1) Manifestation (Emotional, Behavioural, Involves Multiple Systems) - *Abnormal reactivity* - *Venting behaviour*
18	Child Behaviour Checklist-Emotional Dysregulation Index (CBCL-EDI)	Samson et al. (2014)	Behaviours associated with emotional dysregulation (e.g., screaming, arguing, crying, destroying things)	(1) Inability to recognize own emotional state, access self-soothing strategies and relaxation strategies, and maintain progress in goal-directed activities (Berkovits et al., 2017)	(1) Manifestation (Behavioural) - *Venting behaviour* - *Nonconstructive regulation strategies* - *Poor behavioural self-management*

Discussion

The current systematic review and analysis aimed to (a) establish how emotional dysregulation in early childhood is defined by researchers; (b) identify and review all available measures of emotional dysregulation in early childhood; and (c) assess the relationship between how childhood emotional dysregulation is defined and measured in the literature. From an initial database search that identified 2,322 journal articles, 39 full text articles met the study's selection criteria and served as a basis for analysis. Twenty-nine of the final articles explicitly defined emotional dysregulation in early childhood while 32 articles of the final articles featured a measure of childhood emotional dysregulation. Elements of constructivist grounded theory were incorporated into the qualitative data analysis approach used to establish how childhood emotional dysregulation was defined by researchers.

Results revealed five definitional categories that distinctively defined emotional dysregulation in early childhood and two potential definitional frameworks. Definitional categories included (a) manifestation (i.e., how symptoms of childhood emotional dysregulation manifests emotionally, behaviourally, cognitively, and physically); (b) dimensional construct (i.e., how dysregulated responding exists on a continuum ranging from undercontrolled to overcontrolled); (c) duration (i.e., how emotional dysregulation persists); (d) impairment (i.e., how emotional dysregulation can be distressing and cause impairment); and (e) development (i.e., how emotional dysregulation develops in early childhood and can be stable across time).

Definitional categories were integrated and synthesized to form two proposed definitional frameworks for emotional dysregulation in early childhood. In Scenario A, emotional dysregulation in early childhood was conceptualized as a continuous variable and defined as a phenomenon that is on the extreme end of a continuum that ranges from high to

low regulation (i.e., synonymous with low emotional regulation). In Scenario B, emotional dysregulation in early childhood is conceptualized as a categorical variable and defined as a phenomenon that is separate and distinct from emotional regulation.

Collectively, these findings suggest that emotional dysregulation in early childhood is a multifaceted phenomenon that involves multiple systems but impacts children differently. Essentially, a child is considered to be emotionally dysregulated when there is poor emotional awareness and appraisal (e.g., the child is unable to assess how he or she is feeling) coupled with ineffective regulatory attempts that ultimately interfere with goal-directed behaviour. However, emotional dysregulation can impact children differently because of how abnormal emotional reactivity can vary. Based on the findings of the current systematic review, dysregulated emotional responding in young children exists along a continuum that ranges from extremely intense (or undercontrolled) responding to constricted (or overcontrolled) responding. In other words, an emotionally dysregulated child could either display behavioural difficulties (e.g., tantrums, aggression) or withdraw and completely "shut down". The child exhibiting undercontrolled responding may require a long time to return to a regulated state and experience significant distress, while the child exhibiting overcontrolled responding may dissociate from the emotional experience altogether and experience less distress.

Childhood emotional dysregulation's variability in abnormal emotional reactivity is consistent with the states (hyperarousal vs. hypoarousal) that people reportedly enter when they are outside of their window of tolerance (Seigel, 1999). Seigel's (1999) window of tolerance is a concept that describes the optimal window or zone of arousal a person needs to be in to effectively regulate emotions and function in everyday life. When a person is "pushed out" of their window of tolerance (e.g., by intrusive thoughts, stress etc.), emotional regulation is no longer possible and the person enters a state of either hyperarousal (e.g., fight

or flight response, overwhelmed by emotions, out of control) or hypoarousal (e.g., numb, zoned out, dissociated). According to Seigel (1999), the size of an individual's window of tolerance is influenced by variables such as temperament, trauma, social context, physiology (e.g., hunger, thirst, fatigue), and levels of stress. The window of tolerance is often used as a metaphor in psychotherapy to help clients struggling with mental health conditions, such as trauma or posttraumatic stress disorder (PTSD), to understand differences in emotional responding and make sense of their symptoms.

Studies on child emotional development have found that children are likely to throw tantrums and experience meltdowns as they learn how to independently regulate their emotions (Cicchetti et al., 2006; Thompson, 1994). The frequency and intensity of unhelpful behavioural responses, such as tantrums and meltdowns, will eventually decrease with the development of a child's speech and language capabilities (Thompson, 1994). According to findings from the current systematic review and analysis, a child who demonstrates emotional and behavioural difficulties is only considered to be emotionally dysregulated when (a) there is a pattern of dysregulated responding (i.e., overcontrolled or undercontrolled responding) that is stable across time; and (b) the child is unable to return to a regulated state (and resume goal-directed behaviour) in spite of co-regulation attempts by an attuned adult and dysregulated responding persists (Coplan et al., 2001; Keenan, 2000).

The current findings have also helped to distinguish emotional dysregulation in young children from developmentally appropriate behaviour, such as tantrums and "meltdowns". Based on the "four Ds" approach to assessing psychiatric disorders, undercontrolled dysregulated responding in children (e.g., aggression, self-injurious behaviour) can be conceptualized as a mental health disorder (Davis, 2009). The "four Ds" that used to assess symptoms of a possible disorder include deviance (i.e., deviation from the norm), dysfunction (i.e., interference with occupational or social functioning), distress (i.e., emotional distress

and impairment), and danger (i.e., danger to self or others). Children who are considered to be emotionally dysregulated exhibit emotional and behavioural responses that deviate from the norm (deviance) and interfere with goal-directed behaviour (dysfunction). In the case of undercontrolled responding, an emotionally dysregulated child experiences emotional distress and impairment (distress) and exhibits venting behaviour that may be harmful to themselves or others (danger). As how they manage their symptoms involves less danger and distress, emotionally dysregulated children who exhibit overcontrolled responding (i.e., withdrawal, zoning out) are not considered to have a mental health disorder although their symptoms deviate from developmentally appropriate behaviour and cause dysfunction when they interfere with goal-directed behaviour.

In addition to establishing how researchers define childhood emotional dysregulation, the current systematic review also aimed to identify and review all available measures of emotional dysregulation in early childhood. Results revealed 18 measures of childhood emotional dysregulation that were used in 32 empirical studies. Measures of childhood emotional dysregulation included nine behavioural observation methods, five parent reports, and four teacher reports. The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a 24-item parent report measure used to assess emotional regulation and dysregulation in children between 6 and 12 years old, was the most commonly used assessment tool that was featured in seven of the final 32 empirical studies. Four studies measured childhood emotional dysregulation by combining scores from the ERC with scores from another assessment tool, such as a behavioural observation tool or another teacher report measure (i.e., CBCL-EDI; Samson et al., 2014).

Seventeen assessment tools conceptualized childhood emotional dysregulation as a continuous variable with higher scores suggesting greater emotional dysregulation. Only one assessment tool, the Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S;

Denham et al., 2012), conceptualized childhood emotional dysregulation as a categorical variable. In this study by Herndon and colleagues (2013), a child was considered to be emotionally dysregulated if he or she demonstrated any one of three criteria that defined dysregulated responding (i.e., (a) context-related interpersonal aggression; (b) hits, kicks, shoves, knocks over, or throws objects; and (c) unprovoked physical interpersonal aggression). Taken together, these findings suggest a general agreement amongst researchers that emotional dysregulation in early childhood is a phenomenon that deviates from developmentally appropriate behaviour, such as tantrums, but is best conceptualized using a continuum approach (i.e., severity or acuteness of symptoms) rather than a categorical approach (i.e., presence or absence of symptoms).

The third and final aim of the current systematic review was to assess the relationship between how childhood emotional dysregulation is defined and measured in the literature. From the 18 measures of childhood emotional dysregulation that were identified, 16 measures (i.e., 8 behaviour observation methods, 5 parent reports, 3 teacher reports) addressed three of the five categories that distinctively defined emotional dysregulation in early childhood (i.e., manifestation, duration, impairment). The most frequently addressed definitional category was manifestation, where measures mainly assessed how emotional dysregulation manifests emotionally and behaviourally in young children. Only two studies addressed the definitional category of duration, while one study addressed the definitional category of impairment. The remaining two categories (i.e., dimensional construct and development) were not addressed by any of the 18 measures of childhood emotional dysregulation. The Person-Oriented Classification System (Cummings, 1987) and the Dysregulation Coding System (Hoffman et al., 2006), both behavioural observation methods, were the two assessment tools that addressed the highest number of definitional categories (i.e., two definitional categories, manifestation and duration). The Emotion Regulation

Checklist (ERC; Shields & Cicchetti, 1997), a parent report measure, took the most in-depth look at how childhood emotional dysregulation manifests both emotionally and behaviourally.

Based on a grounded theory approach to analysis of the results of the current systematic review, emotional dysregulation in early childhood is characterized by abnormal emotional reactivity and poor emotional awareness and appraisal, as well as ineffective behavioural self-management that interferes with goal-directed behaviour. Childhood emotional dysregulation persists in spite of attempts at co-regulation and causes emotional distress. In line with research on detecting mental health disorders, emotional dysregulation in early childhood that involves undercontrolled responding may be considered pathological as it deviates from developmentally appropriate behaviour, causes dysfunction and distress, and may be dangerous for the child and others (Davis, 2009). This conceptualization of childhood emotional dysregulation is in line with how childhood emotional dysregulation is detected and measured by researchers. More specifically, 17 of the 18 measures that were identified in the current study were developed specifically to assess emotional dysregulation in young children rather than utilizing measures of emotional regulation and conceptualizing emotional dysregulation as low emotional regulation. These findings lend support to the argument that childhood emotional dysregulation is a phenomenon that is separate and distinct from emotional regulation and is not synonymous with low emotional regulation.

Current findings also reveal a mismatch between definitional categories and how childhood emotional dysregulation is detected and measured in the literature. Essentially, only three out of five definitional categories were addressed by the measures of childhood emotional dysregulation (i.e., manifestation, impairment, duration) that were identified in this study. Considering concerns over unnecessarily pathologizing young children and distinguishing emotional dysregulation from developmentally appropriate behavioural

difficulties, definitional characteristics such as dimensional construct and development would be worthwhile incorporating into assessment measures to establish the nature of dysregulated responding (i.e., undercontrolled versus overcontrolled) and whether it is stable across time. Based on the articles featured in the current systematic review, research in the field of childhood emotional dysregulation has focused largely on assessing and treating symptoms associated with undercontrolled responding, such as aggressive behaviour. This could be because undercontrolled responding can be difficult to manage and disruptive to a child's learning and social development. However, detecting both forms of dysregulated responding is important as emotionally dysregulated children who exhibit overcontrolled responding are more likely to go unnoticed by adults but are still at risk for the development of psychopathology in adulthood without the necessary intervention.

Implications

Findings from the current systematic review have several important implications for both research and clinical practice. More specifically, the definitional categories identified in the current systematic review will aid in understanding how emotional dysregulation in early childhood can best be defined and conceptualized (i.e., categorical vs. continuum) as discussed in Chapter 2 (How are Concepts Structured?). This can ultimately inform the selection of assessment tools and psychological treatment approaches. The current systematic review has also found that dysregulated responding can be intense and undercontrolled as well as mild and overcontrolled. These findings have highlighted the need for assessments of childhood emotional dysregulation to take variations in dysregulated responding into account to ensure that emotionally dysregulated children who exhibit overcontrolled responding do not go undetected by adults.

Strengths and Limitations

The current systematic review and analysis have several noteworthy strengths. Namely, it is the first of its kind to systematically review the scholarly literature that defines

emotional dysregulation in early childhood. It is also the first of its kind to consolidate all available measures of childhood emotional dysregulation and review their relationship with how childhood emotional dysregulation has been defined. Essentially, the current review has used elements of grounded theory to analyse and synthesize the relevant literature to provide a clear and comprehensive overview of how childhood emotional dysregulation has been defined and measured by researchers over the years. These outcomes would not have been achieved with a quantitative review or meta-analysis. However, a limitation of the current study is that important information from articles that have defined or measured childhood emotional dysregulation may have been omitted if they were not included in the major databases that were selected for current systematic review (e.g., Scopus, PsychINFO (ProQuest), ERIC, Web of Science, PubMed Central, MEDLINE (Ovid), and SAGE Journals). Results of the current systematic review may have also been influenced by publication bias, whereby relevant information is omitted when journals prefer to publish studies that demonstrate statistically significant results.

Recommendations

The current systematic review and analysis have established how emotional dysregulation in early childhood is defined by researchers, identified and reviewed all available measures of childhood emotional dysregulation, and assessed the relationship between how childhood emotional dysregulation is measured and defined in the literature. Findings from the current study support the need for further investigation into how emotional dysregulation in early childhood should be defined and conceptualized. Thus, the next step for this project is to understand how emotional dysregulation in early childhood is defined by expert practitioners who are experienced in the assessment and treatment of emotional dysregulation in children from birth to 8 years old. A modified Delphi approach was used in the next phase of this project. Expert practitioners were invited to rate their level of

agreement with definitional statements based on findings from the current study as well as select the approach that best conceptualizes childhood emotional dysregulation (i.e., continuous versus categorical). Specific to the current study, recommendations for future research include establishing the most valid and reliable assessment tool (or combination of assessment tools) for young children (i.e., 0 to 8 years) based on the five definitional categories discussed here.

Chapter Conclusion

This chapter presented findings from a systematic review of the scholarly literature that defines emotional dysregulation in early childhood. Qualitative data analysis revealed five definitional categories and two proposed definitional frameworks (i.e., categorical vs. continuum). Results also highlighted a mismatch between how childhood emotional dysregulation is defined by researchers and how childhood emotional dysregulation is detected and measured in the literature. Collectively, these findings warrant further investigation into how childhood emotional dysregulation should be defined. Thus, the next step for this project was to present the current findings to expert practitioners in the field of childhood emotional dysregulation to gain additional insight into how emotional dysregulation should be defined and conceptualized.

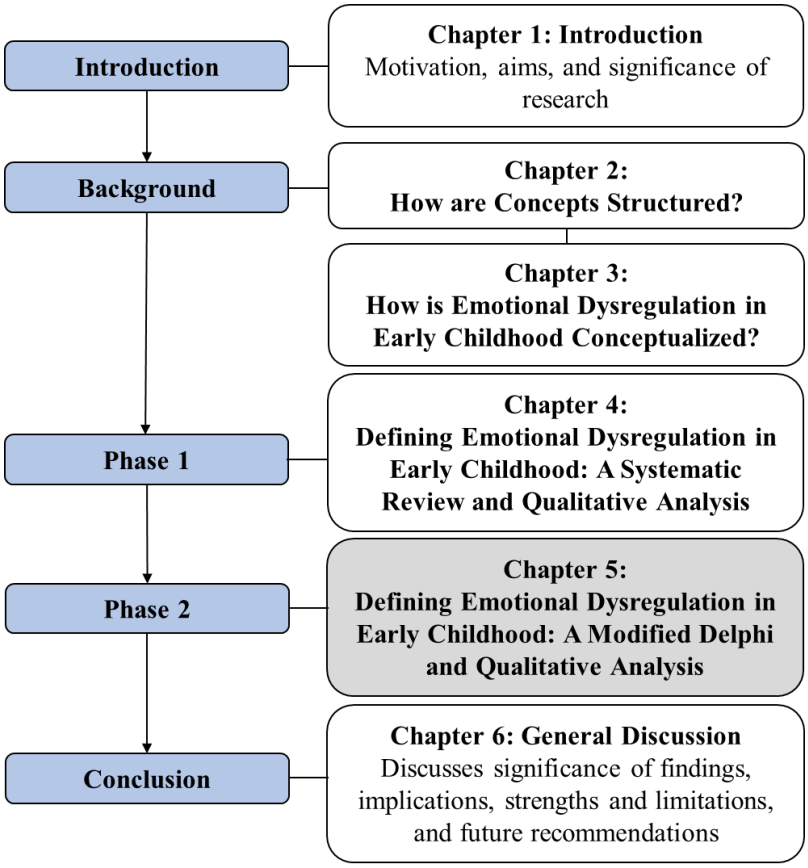
Chapter 5:

Defining Emotional Dysregulation in Early Childhood: A Modified Delphi and Qualitative Analysis

Chapter 5 presents findings from the second phase of the current project. In this phase, a modified Delphi study was conducted to determine how childhood emotional dysregulation was defined by expert practitioners in that field. The current chapter details the modified Delphi process and discusses the study's findings, strengths, and limitations. The modified Delphi technique is first outlined and the rationale for its selection for the current study is discussed within the context of the method's advantages and disadvantages.

Figure 5.1

Scope of Thesis



The Modified Delphi Technique

The Delphi method is a "consensus development technique" that attempts to achieve agreement from a group of experts on an important issue where no agreement previously existed (Keeney et al., 2011). Developed by mathematicians Norman Dalkey and Olaf Helmer (1963) at the beginning of the cold war, the approach was initially used to predict the impact of technology on warfare (Keeney et al., 2011). The method was developed on the premise that group opinion is more valid and reliable than individual opinion (Dalkey & Helmer, 1963). It was also developed as a means to overcome the shortcomings of other face-to-face group discussions, such as pressure for conformity within a group or groupthink (Janis, 1982).

In its classical form, the Delphi process consists of at least two rounds of questionnaires administered to a panel of subject matter experts (SMEs). The first round of a classical Delphi involves asking SMEs for their opinions on a certain issue in an open-ended manner. These responses are then analysed by the researcher and sent back to panellists in the form of statements. In this second round, SMEs rate their level of agreement with each statement (typically on a 7-point Likert scale) based on their expert opinion on the subject. From the third round of a classical Delphi onwards, panellists are provided with feedback in the form of their responses together with the average group response. SMEs are asked to reconsider their responses in light of the average group response and are invited to change their responses if they wish. This process is repeated for subsequent rounds until consensus is reached (Keeney et al., 2011). For the Delphi method, consensus does not necessitate 100% agreement among panellists. Instead, Delphi consensus has been found to be as low as 55% in some studies with 70% agreement considered to be the standard (Avella, 2016).

The Delphi method is considered to be modified when its first round does not involve consulting with the expert panel. Instead, the first round of a modified Delphi is replaced with

information generated from a review of the relevant literature, interviews with individuals either within or outside of the expert panel, or results from a questionnaire administered to a group external to the expert panel. These findings, in the form of statements, would then be disseminated to SMEs to commence the consensus seeking process. Like a classical Delphi, SMEs will be asked to rate their level of agreement with each statement. SMEs will also be encouraged to add to this list of statements based on their own experiences so as to prevent the researcher from limiting responses and unintentionally introducing bias.

Since the introduction of the technique in the 1950s, the classical Delphi has evolved to include a number of variations. Different types of Delphi approaches include the Real Time Delphi (i.e., experts are in the same room for the entire Delphi process) and the Disaggregative Delphi (i.e., uses cluster analysis and the goal of consensus is not adopted). See Keeney et al. (2011) for a full review of the different types of Delphi approaches that have been used by researchers. The Delphi method has also gained acceptance and popularity in recent years which has been apparent in its use across disciplines such as psychology, nursing, business, and medicine (Avella, 2016; Iqbal & Pipon-Young, 2009; Keeney et al., 2011). Its increasing popularity and numerous variations have also demonstrated how straightforward and flexible the Delphi method can be to administer.

Irrespective of approach, two design characteristics that are essential to all Delphi panels are participant anonymity and feedback (Avella, 2016). Developers of the Delphi method believed that averaging separately collected opinion provides a more accurate picture than a collective opinion from a face-to-face group discussion (Dalkey & Helmer, 1963). This is based on the assumption that when the identities of panellists are concealed, panellists are more inclined to express themselves freely without pressure or influence from others. In addition to participant anonymity, feedback has also been deemed essential to the execution of the Delphi method (Avella, 2016). From the third round of a classical Delphi onwards,

panellists typically receive feedback about previous rounds to guide their decision-making moving forward. Feedback is generally in the form of the average group response that is presented next to their own response. In light of this feedback, panellists have the option to change their responses if they wish to. Without ongoing feedback, the Delphi process has been considered to be more of a general inquiry than the consolidated expert opinion (Avella, 2016).

Selecting the right individuals who meet the criteria for expert status is also extremely important in the Delphi approach. This is because the aim of the Delphi method is not to generate right, wrong, or definitive answers but to elicit valid expert opinion (Keeney et al., 2011). Thus, the Delphi method does not utilize a random sample that is representative of a target population. Instead, it employs experts or informed individuals in the area of the researcher's interest (Kenney et al., 2011). However, the approach has been criticized for its lack of agreed standards for how experts should be selected and how many experts should be included in a panel (Sackman, 1975). Recruitment of panellists can bring with it the potential for bias but that can be avoided by excluding individuals who have a personal relationship with the researcher, approaching professional societies, and developing expert criteria with another member of the research team (Avella, 2016).

The Delphi method was selected for the current study because of its many advantages. More specifically, the method's ease of electronic communications enables researchers to draw on the collective expertise of an international group of SMEs by overcoming administrative issues associated with geography, busy schedules, and pressures of conformity. Additionally, the method is fairly straightforward to administer and offers researchers the flexibility to ask questions in an open-ended manner and invite panellists to elaborate on their quantitative responses when needed. In doing so, researchers are able to incorporate both quantitative and qualitative responses into their findings. This can be

particularly helpful when pursuing complex topics where there is little agreement and the subjective judgments of SMEs could generate breakthroughs (Avella, 2016; Iqbal & Pipon-Young, 2009).

Like any other research methodology, the Delphi approach comes with its own set of disadvantages. However, these disadvantages can be overcome by paying close attention to the design of the Delphi process (Avella, 2016). For example, some researchers agree that the Delphi method has the potential for researcher bias (Keeney et al., 2011). Thus, while establishing expert criteria, recruiting participants, and analysing results, it is in the best interest of the researcher to consult with others (e.g., faculty members, research committee) to ensure that the researcher does not unintentionally steer the Delphi approach in a particular direction (Avella, 2016; Keeney et al., 2011). In the case of the current study, the researcher consulted with her advisory panel throughout the conceptualization, data collection, and data analysis phases. It has also been reported that the attrition rate for the Delphi approach can be high as the entire Delphi process requires a substantive time commitment and panellists may lose interest along the way. To circumvent this problem in the current study, efforts were made to enhance response rates by following the guidelines recommended by Keeney et al. (2011). The guidelines included clearly informing panellists of the aims of the study, the anticipated number of rounds, and the expected time commitment. It is also recommended that the steps taken to protect the anonymity and confidentiality of panellists' responses should be communicated at the start of the study.

Research Aim

The aim of the current study was to determine how emotional dysregulation in early childhood is defined by practitioners. This was achieved by gathering feedback from educational and clinical psychologists with first-hand experience in the assessment and treatment of emotional dysregulation in children from birth to 8 years old. In this study,

expert practitioners in the field of childhood emotional dysregulation or subject matter experts (SMEs) were asked to provide their opinions on how childhood emotional dysregulation should be conceptualized with regards to the category versus continuum debate.

Research Design

A modified Delphi approach was used to determine how emotional dysregulation in early childhood is defined by practitioners who are experienced in the assessment and treatment of emotional dysregulation in children from birth to 8 years old. The Delphi method used in this study is considered modified because it took place in two phases. In the first phase, a systematic review was conducted to establish how emotional dysregulation in early childhood is defined by researchers. Findings from this review were used to generate the questionnaire that would be used in the second phase of the modified Delphi. The second phase consisted of two rounds of data collection from an international panel of subject matter experts (SMEs). In Round 1, SMEs rated their level of agreement with 25 definitional statements and selected the approach that best conceptualized childhood emotional dysregulation (i.e., continuous versus categorical). In Round 2, SMEs were provided with results from the previous round and invited to rerate 11 of the initial 25 definitional statements. An overview of the current study's research design is summarized in Figure 5.2. Hypothesis testing was not involved in the current study as findings for the Delphi method are determined through expert consensus.

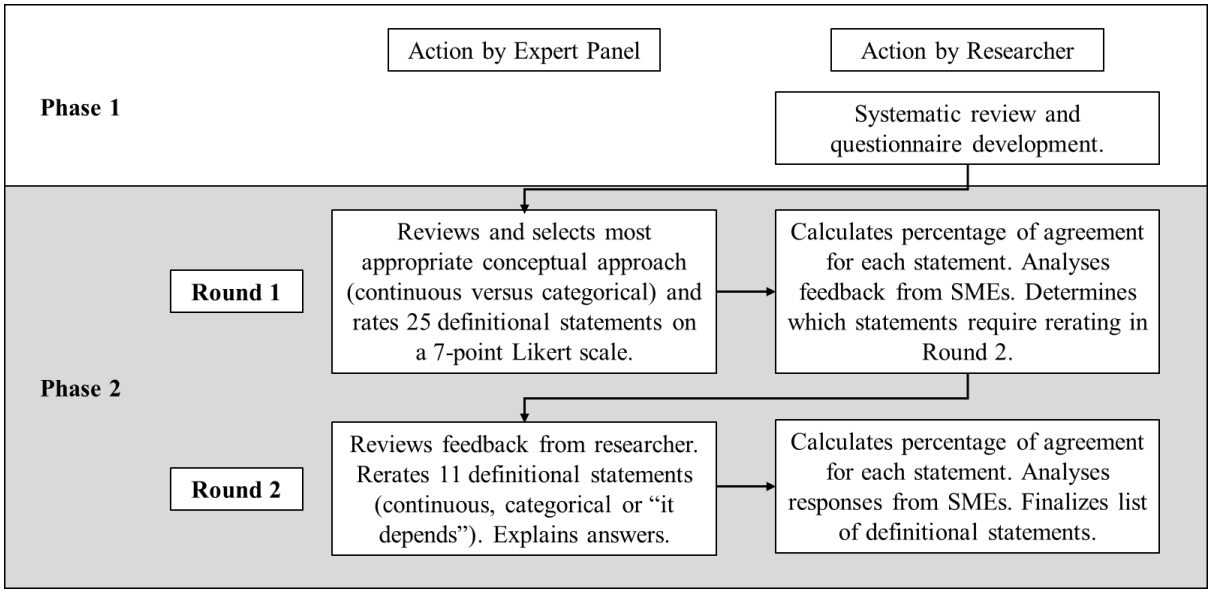
Questionnaire Development

A systematic review of the literature was conducted between May 2019 and October 2020 to establish how emotional dysregulation in early childhood (e.g., birth to eight years) was defined by researchers. The full review is reported in Chapter 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis). Online

databases Scopus, PsychINFO (ProQuest), ERIC, Web of Science, PubMed Central, MEDLINE (Ovid), and SAGE Journals were searched using the terms “emotional dysregulation” and “early childhood”. Synonyms and variations of the terms were included in the search strategy to maximize the retrieval of relevant results. The Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009) protocol and the PICOS (Population, Intervention, Comparison, Outcome measures, Study design) framework were used to design the search strategy. To enable a comprehensive review of the available literature, experimental studies (e.g., randomized controlled trials, single-group pre- and post-test studies, and single-case experimental designs) and theoretical works that focused on and defined emotional dysregulation were included. The search identified twenty-nine full-text journal articles where authors explicitly defined emotional dysregulation in early childhood.

Figure 5.2

Overview of Modified Delphi Research Design



Information from these articles was analysed by the researcher to identify the terminology used to define childhood emotional dysregulation. As the systematic review focused primarily on conceptual issues, a qualitative approach to data analysis was selected over a quantitative one. Based on the philosophical position of the researcher, elements of

constructivist grounded theory (Charmaz, 2003; 2006) were incorporated into the qualitative approach. These elements included (a) an iterative process whereby reflection and reexamination of the data occurred throughout the analytic process; (b) data gathering decisions that were made based on the research questions; (c) codes and categories that were created from the data; (d) theoretical development and comparison of cases that occurred during data collection and analysis; and (e) evidence of theoretical saturation (adapted from Hutchinson et al., 2010). Qualitative data analysis of search results revealed five definitional categories (i.e., manifestation, dimensional construct, duration, impairment, development) that were integrated and synthesized to form two proposed definitional frameworks for emotional dysregulation in early childhood (Scenario A versus Scenario B) and 25 statements that define childhood emotional dysregulation (Table 5.1). In Scenario A, emotional dysregulation in early childhood was defined as a continuous variable that was on the extreme end of a continuum that ranged from high to low regulation (Figure 5.3). In Scenario B, emotional dysregulation was defined as a categorical variable or a phenomenon that was separate and distinct from emotional regulation (Figure 5.4). Of the 25 definitional statements, eight statements were assessed during the first phase of the current project to be applicable to both Scenarios A and B while the remaining statements were deemed to fit exclusively with either Scenario A (3 items) or B (14 items) (See Chapter 4 for detailed data analysis). The two definitional frameworks and 25 definitional statements formed the online questionnaire that was presented to experts in Round 1 of the study's modified Delphi.

Figure 5.3

Scenario A: Emotional Dysregulation in Early Childhood as a Continuous Variable

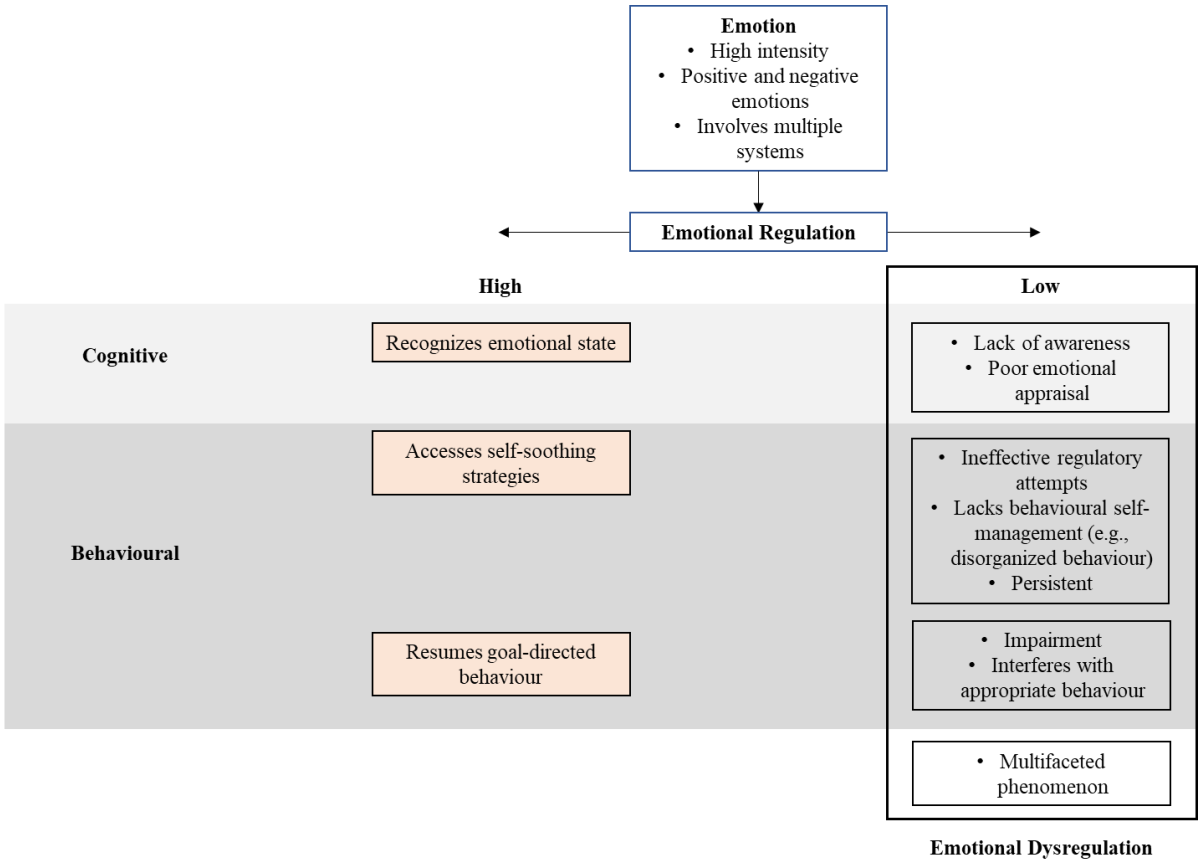


Figure 5.4

Scenario B: Emotional Dysregulation in Early Childhood as a Categorical Variable

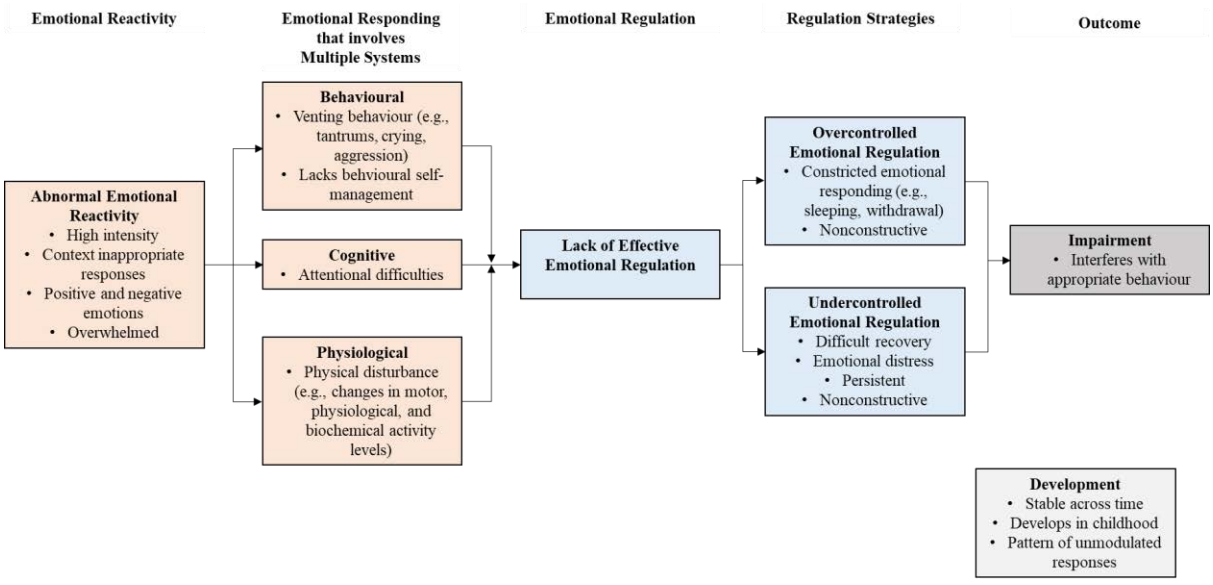


Table 5.1

25 Definitional Statements from Systematic Review

No.	Scenario	Description
1	A&B	Emotional dysregulation can apply to both positive and negative emotional responses
2	A&B	Emotional dysregulation involves multiple systems (e.g., cognitive, physical, behavioural)
3	A&B	Emotional dysregulation is a multifaceted phenomenon
4	A&B	Emotional dysregulation occurs when emotional responses are high in intensity
5	A&B	Emotional dysregulation involves poor behaviour self-management that results in disorganized behaviour
6	A&B	Emotional dysregulation persists after regulatory attempts have been made or needs have been met
7	A&B	Emotional dysregulation causes significant physical and emotional impairment
8	A&B	Emotional dysregulation interferes with appropriate behaviour
9	A	Emotionally dysregulated children lack emotional awareness
10	A	Emotionally dysregulated children have difficulties appraising emotionally evocative situations
11	A	Emotional dysregulation occurs when regulatory attempts are ineffective
12	B	Emotional dysregulation involves abnormal emotional reactivity
13	B	Emotional dysregulation occurs when a child is overwhelmed by an emotional response
14	B	Emotional dysregulation consists of context inappropriate emotional responses
15	B	Emotional dysregulation involves venting behaviour
16	B	Emotional dysregulation involves attentional difficulties
17	B	Emotional dysregulation involves physical disturbance caused by changes in biochemical activity levels
18	B	Emotional dysregulation occurs when there is a lack of effective emotional regulation
19	B	Emotional dysregulation consists of nonconstructive attempts at emotional regulation
20	B	Emotional dysregulation consists of constrictive emotional responses
21	B	Emotional dysregulation consists of emotional responding that is difficult to recover from
22	B	Emotional dysregulation causes emotional distress
23	B	Emotional dysregulation is stable across time
24	B	Emotional dysregulation develops in early childhood
25	B	Emotional dysregulation implies a pattern of unmodulated emotional responding

Note. In Scenario A, emotional dysregulation in early childhood is conceptualized as a continuous variable, while in Scenario B, emotional dysregulation in early childhood is conceptualized as a categorical variable. Definitional statements were assigned to scenarios based on data analysis carried out in Chapter 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis).

Method

Expert Panel Selection

Clinical and educational psychologists who had experience in the assessment and treatment of emotional dysregulation in early childhood (i.e., birth to eight years) were identified as experts and invited to take part in the study's modified Delphi. Psychologists were considered to be subject matter experts or experts in the field of childhood emotional dysregulation if they met the expert criteria outlined in Table 5.2. Expert criteria were established by the researcher and her primary advisor and based on the considerations for expert selection outlined by Keeney and colleagues (2011). Considerations for expert status included identification of individuals who possessed the most relevant knowledge of the area under investigation (e.g., years of working experience in a particular area) and who were deemed to be in the best position to answer the study's research question (e.g., specific qualifications). As participants were recruited based on their expertise, there were no limits imposed on participant gender or age. To reduce any potential researcher bias, experts were not invited to take part in the study if they had a professional relationship with the researcher.

Table 5.2

Delphi Panel Expert Criteria

Inclusion Criteria	Exclusion Criteria
1. Postgraduate qualifications in the field of clinical or educational psychology 2. Registered psychologist with country's psychology regulatory body 3. At least 5 years post-qualification experience working with children 8 years and under 4. Practical experience in the assessment and treatment of emotional dysregulation in children 8 years and under 5. Able to read and write English 6. Willing to participate	1. Any known personal relationship between researcher and expert

Purposive sampling based on the study's expert criteria was used to recruit participants. The researcher and her primary advisor formed the initial list of potential experts and then sought recommendations from their professional psychology networks. The researcher approached clinical and educational psychologists from both her university (i.e., academic staff and fellow postgraduate students) and place of work (i.e., colleagues and fellow clinicians) for suggestions for the names and contact details of potential candidates for the expert panel. Sixty individuals from six countries (Australia, China, Malaysia, North America, Singapore, and Great Britain) who met the criteria for expert status were invited via email to participate in the modified Delphi panel.

The targeted number of participants (n = 60) was derived from the current literature and various recommendations for Delphi panel size (Avella, 2016). There are no standardized criteria for Delphi panel size but panels have ranged from four experts (Gustafson et al., 1973) to 167 experts (Langlands et al., 2008). Of 60 experts identified to participate in the study's Delphi panel, seven experts (11.7%) agreed to participate in Round 1 (4 females, 3 males). The remaining 53 experts neither responded to the email invitation nor accessed the survey link. The participating experts originated from North America (n = 3) and Singapore (n = 4). Four experts were clinical psychologists (57.1%), two were educational psychologists (28.6%), and one was a school and counselling psychologist (14.3%). At the time of the study, six experts were employed in a full-time position as practitioners (85.7%) and one expert was not practicing (14.3%). All experts possessed postgraduate qualifications in the field of clinical or educational psychology (Master's 42.9%, PhD 42.9%, professional Doctorate 14.2%). Experts reported between 5 to 20 years (M = 10.86, SD = 6.67) of practical experience in the assessment and treatment of emotional dysregulation in early childhood since the completion of postgraduate studies. Round 2 of the modified Delphi was completed

by five of the seven experts. There were no responses from the final two experts despite follow-up emails.

Round 1 Procedure

The current procedure was approved by the James Cook University Human Research Ethics Committee (see Appendix D). Sixty individuals who met the criteria for expert status were invited via email to participate in the modified Delphi panel. The email invitation contained an information sheet that detailed the aims of the study, the Delphi process, and the expected duration of participation. The information sheet highlighted that participation was completely voluntary and that participants could withdraw at any time. They were invited to complete up to three online surveys approximately three weeks apart. The email invitation also contained a link to a survey site (developed using the online research platform, Qualtrics) where they could participate in Round 1. No incentives were offered or given for participation.

Experts who decided to take part in the Delphi panel were provided access to the first questionnaire via the link provided in the invitation email. Upon entering the survey site, participants were asked to provide informed consent by indicating that they understood the aims of the project. Informed consent was implied by clicking on the "I agree" button on the screen. Individuals who did not wish to participate could either close their browser or click on the 'I do not agree' button on their screen to exit. After providing informed consent, participants were directed to the demographics page where they were asked to provide information about their field of work (e.g., educational psychologist, clinical psychologist, other), present job title, qualifications (e.g., masters, PhD, professional doctorate), years of experience since completing postgraduate studies, gender, age range, and work setting (e.g., health service, private practice, other).

Participants were then presented with Scenarios A and B that were based on findings from the systematic review presented in Chapter 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis). Each scenario consisted of a diagram and a short description (Appendix E). Participants were encouraged to study each scenario carefully as they were no longer able to access the diagrams and writeups once they proceeded to the survey. Once they were ready, participants were asked to select the scenario that they thought best defined emotional dysregulation in early childhood. Participants were then asked to rate their level of agreement with 25 statements that defined emotional dysregulation in early childhood using a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Do Not Know, 4 = Agree, 5 = Strongly Agree). Participants were also provided with space to add to this initial list of definitional statements based on their own professional experience and expertise. These additions were to be rated by the same panel members in Round 2 of the Delphi procedure. The survey took approximately 10 minutes to complete, and responses were de-identified (i.e., assigned a unique case number) and kept confidential. Participants were asked to complete the first questionnaire within two weeks and an email reminder was sent to participants through Qualtrics one week before the deadline.

Round 1 Analysis and Results

Both quantitative and qualitative approaches were used to analyse the data collected from the first round with the aim to establish which scenario best defined emotional dysregulation in early childhood as well as the statements that should be included in its definition. Questionnaire responses were recorded in de-identified form, exported from Qualtrics, and analysed using SPSS, a software package used for statistical analysis. Summary statistics, such as frequencies and percentages, were run on the data to determine the number of statements that reached consensus. The following cut-off points for consensus were used:

1. If at least 60% of panel members “agree” or “strongly agree” with a statement, it was immediately included as a defining feature of emotional dysregulation in early childhood and that statement was not featured in subsequent rounds.
2. If 50-59% of panel members “agree” or “strongly agree” with the statement, all panel members were asked to rerate it in Round 2.
3. Any statements with less than 50% agreement were excluded from the definition.

When asked to select the most appropriate scenario, 6 (85.71%) out of 7 panel members selected Scenario A that defined emotional dysregulation in early childhood as a continuous variable that was on the extreme end of a continuum that ranged from high to low regulation. Out of the 25 definitional statements that were included in Round 1, at least 60% of panel members agreed or strongly agreed with 20 statements. These statements were automatically included in the definition of emotional dysregulation in early childhood and did not need to be featured in subsequent rounds. Five statements were excluded from the definition because there was less than 50% agreement among panel members. Percentages of agreement for each item are summarized in Table 5.3.

Burnard’s (1991) approach to content analysis was adapted to analyse responses provided by panel members in the open-ended portion of the questionnaire (i.e., where panel members were invited to add to the list of 25 definitional statements based on their own professional experience and expertise). Burnard’s (1991) method of content analysis is a 14-stage process that has been used to analyse responses obtained from participants in the first round of a classic Delphi study. Essentially, the process involves reviewing qualitative data (e.g., from interviews or open-ended questions) and grouping similar statements according to general themes. Definitional statements that are identical in meaning are collapsed into one statement. If statements are similar, at least two researchers would discuss whether the statements are sufficiently different to warrant them being rated as two statements in the next

round of the Delphi procedure. Statements generated from this process are then sent to panel members who would then rate their level of agreement with each statement. See Burnard (1991) for an overview of the entire approach.

Table 5.3

Modified Delphi Round 1 Results

No.	Scenario	Description	Agreement
Included (≥ 60% agreement)			
1	A/B	Emotional dysregulation can apply to both positive and negative emotional responses	100
2	A/B	Emotional dysregulation involves multiple systems (e.g., cognitive, physical, behavioural)	100
3	A/B	Emotional dysregulation is a multifaceted phenomenon	100
4	A/B	Emotional dysregulation involves poor behaviour self-management that results in disorganized behaviour	100
5	A/B	Emotional dysregulation interferes with appropriate behaviour	100
6	B	Emotional dysregulation occurs when a child is overwhelmed by an emotional response	100
7	B	Emotional dysregulation consists of context inappropriate emotional responses	100
8	B	Emotional dysregulation occurs when there is a lack of effective emotional regulation	100
9	B	Emotional dysregulation causes emotional distress	100
10	B	Emotional dysregulation develops in early childhood	100
11	A/B	Emotional dysregulation causes significant physical and emotional impairment	85.7
12	A	Emotionally dysregulated children have difficulties appraising emotionally evocative situations	85.7
13	A	Emotional dysregulation occurs when regulatory attempts are ineffective	85.7
14	B	Emotional dysregulation involves abnormal emotional reactivity	85.7
15	B	Emotional dysregulation involves venting behaviour	85.7
16	B	Emotional dysregulation consists of nonconstructive attempts at emotional regulation	85.7
17	B	Emotional dysregulation implies a pattern of unmodulated emotional responding	85.7
18	A/B	Emotional dysregulation occurs when emotional responses are high in intensity	71.5
19	B	Emotional dysregulation involves physical disturbance caused by changes in biochemical activity levels	71.4
20	B	Emotional dysregulation consists of emotional responding that is difficult to recover from	71.4
Excluded (≤50% agreement)			
1	A&B	Emotional dysregulation persists after regulatory attempts have been made or needs have been met	42.9
2	A	Emotionally dysregulated children lack emotional awareness	42.9
3	B	Emotional dysregulation consists of constrictive emotional responses (e.g., sleeping)	42.9
4	B	Emotional dysregulation involves attentional difficulties	42.9
5	B	Emotional dysregulation is stable across time	28.6

In the current study, three of the seven panel members commented on additional factors that should be considered when defining emotional dysregulation in early childhood. Comments from panel members were read by the researcher and grouped according to general themes. Themes were then discussed with the researcher's primary advisor. Results revealed the emergence of an overarching theme of subjectivity that should be taken into consideration when defining emotional dysregulation in early childhood. According to three participants, definitional statements in Round 1 were challenging to rate as things are not always black or white when it comes to conceptualizing emotional dysregulation in young children. For example, one participant shared:

> *"There are subjective factors that are likely to contribute, such as the individual's sensitivity to social, emotional and/or sensory feedback. I believe that most individuals who have trouble with emotional dysregulation are much more susceptible to becoming overwhelmed by these types of feedback. Trouble with emotional dysregulation may also be conceptualized as a partial challenge with sensory, social and emotional gating which makes the individual prone to becoming flooded by their experiences."*

In addition to sensitivity to social, emotional, and sensory feedback, another participant shared that other subjective factors for childhood emotional dysregulation could include stress levels, social engagement, and trauma, as well as caregiver co-regulation skills. Two of the three participants recommended that responses from Round 1 should have included an option for "it depends" or "sometimes" with space in the questionnaire to explain their decision.

Round 2 Procedure

In Round 1, 6 out of 7 of participants agreed that Scenario A (i.e., emotional dysregulation as a continuous variable) best represented how emotional dysregulation in early

childhood should be defined. In spite of this, results from Round 1 revealed that participants endorsed 11 statements from Scenario B (i.e., emotional dysregulation as a categorical variable) and agreed that they should be included in the definition of childhood emotional dysregulation. In the open-ended portion of the questionnaire, participants also suggested that an "it depends" option be included with space to explain their answers. Thus, in Round 2 participants were invited to elaborate on their answers from Round 1 and rerate the 11 definitional statements from Scenario B with an “it depends” option.

The link to the second online questionnaire was sent to participants approximately two weeks after the completion of Round 1. At the start of the questionnaire, participants were provided with feedback in the form of percentages (Scenario A vs. Scenario B) and were invited to review both scenarios before rating each of the 11 statements from the previous round. Taking participant feedback into consideration, participants were asked to indicate whether each statement should be placed in “Scenario A”, “Scenario B”, or “It depends”. Participants were also provided with space to elaborate on their decisions. Like Round 1, the questionnaire took approximately 10 minutes to complete. Responses were de-identified and kept confidential. Participants were asked to complete the second questionnaire within two weeks and an email reminder was sent to participants through Qualtrics one week before the deadline.

Round 2 Analysis and Results

Round 2 aimed to gather additional input from participants with regards to placement of statements from Scenario B that were endorsed in Round 1. SPSS was used to run summary statistics (i.e., percentages, frequencies) on questionnaire responses to determine participant agreement. The cut-off points for consensus used in Round 1 were applied to the data analysed in Round 2 (i.e., at least 60% of panel members must agree for consensus to be achieved). From the 11 statements, participants agreed that four statements belonged in

Scenario A and one statement belonged in Scenario B. When asked to elaborate on their answers, most participants reported that Scenario A was the most suitable way of describing and classifying children who struggle with emotional dysregulation. Percentages of agreement for each outcome are summarized in Table 5.4.

Table 5.4

Modified Delphi Round 2 Results

No.	Description	Scenario	Agreement
1	Emotional dysregulation occurs when a child is overwhelmed by an emotional response	A	80
2	Emotional dysregulation occurs when there is a lack of effective emotional regulation	A	80
3	Emotional dysregulation implies a pattern of unmodulated emotional responding	A	80
4	Emotional dysregulation develops in early childhood	A	60
5	Emotional dysregulation consists of nonconstructive attempts at emotional regulation	B	80
6	Emotional dysregulation causes emotional distress	It Depends	60
7	Emotional dysregulation consists of emotional responding that is difficult to recover from	It Depends	60
8	Emotional dysregulation consists of context inappropriate emotional responses	It Depends	60
9	Emotional dysregulation involves abnormal emotional reactivity	No Agreement	-
10	Emotional dysregulation involves venting behaviour (e.g., throwing a tantrum)	No Agreement	-
11	Emotional dysregulation involves physical disturbance caused by changes in biochemical activity levels	No Agreement	-

Participants agreed that three statements could be placed in either scenario, depending on several factors. For example, for the statement "*emotional dysregulation consists of emotional responding that is difficult to recover from*", one participant commented that recovery depends on the individual. More specifically, some individuals who struggle with emotional dysregulation may find the unfiltered expression of emotions cathartic and, once

the episode of dysregulation is resolved, may feel more settled and are ready to move on with the day. Another participant commented that whether or not an episode of emotional dysregulation is difficult to recover from depends on other individual differences, such as attachment style and temperament, as well as environmental factors, such as the co-regulation skills of the caregiver. Consensus was not reached for the remaining three statements and these statements were automatically excluded from the definition of emotional dysregulation in early childhood. The final 13 statements to be included in the study's definitional framework whereby emotional dysregulation in early childhood is considered to exist on a continuum are listed in Table 5.5.

Table 5.5

List of 13 Final Definitional Statements

No.	Description
1	Emotional dysregulation can apply to both positive and negative emotional responses
2	Emotional dysregulation involves multiple systems (e.g., cognitive, physical, behavioural)
3	Emotional dysregulation is a multifaceted phenomenon
4	Emotional dysregulation involves poor behaviour self-management that results in disorganized behaviour
5	Emotional dysregulation interferes with appropriate behaviour
6	Emotional dysregulation occurs when a child is overwhelmed by an emotional response
7	Emotional dysregulation occurs when there is a lack of effective emotional regulation
8	Emotional dysregulation develops in early childhood
9	Emotional dysregulation causes significant physical and emotional impairment
10	Emotionally dysregulated children have difficulties appraising emotionally evocative situations
11	Emotional dysregulation occurs when regulatory attempts are ineffective
12	Emotional dysregulation implies a pattern of unmodulated emotional responding
13	Emotional dysregulation occurs when emotional responses are high in intensity

Discussion

The current modified Delphi aimed to determine how emotional dysregulation in early childhood is defined by expert practitioners in the field of childhood emotional dysregulation (i.e., subject matter experts or SMEs). Seven SMEs provided their opinions on whether childhood emotional dysregulation should be conceptualized using a categorical or continuum approach as well as which of the 25 definitional statements generated from an earlier systematic review should be included in the project's final definitional framework. Following two rounds of online questionnaires, consensus was achieved for the inclusion of 13 of the original 25 statements that defined childhood emotional dysregulation. Results also revealed that most SMEs agreed that emotional dysregulation in early childhood should be conceptualized as a continuous variable (i.e., synonymous with low emotional regulation) rather than a categorical variable (i.e., a disorder that is discretely separable from already-characterized childhood disorders). This conceptualization is consistent with the continuum approach taken by many psychologists in measuring psychological constructs such as mental disorders (Edens et al., 2006; Hankin et al., 2005).

Findings from the current modified Delphi suggest that emotional dysregulation in early childhood is best understood as existing on the extreme end of a continuum that ranges from high to low emotional regulation abilities. High emotional regulation for young children is believed to involve age-appropriate (a) emotional awareness and understanding; (b) emotional acceptance; (c) the application of appropriate strategies to manage emotional responses; and (d) the ability to manage impulsive behaviours and behave in accordance with desired goals when faced with intense emotions (Gratz & Roemer, 2004; Southam-Gerow & Kendall, 2001). Essentially, a child has the age-appropriate cognitive abilities to assess and understand the type of emotion that is being experienced and to access the appropriate strategies to manage their emotions, feel better, and carry on with what they want to do. For a

young child, emotional regulation efforts could either be intrinsic (e.g., self-soothing) or extrinsic (e.g., coregulation with an adult) (Cicchetti et al., 2006; Thompson, 1994).

Emotional dysregulation in early childhood, on the other hand, is considered by SMEs to be synonymous with low emotional regulation. Here, emotional dysregulation is believed to occur when a child encounters difficulties with the cognitive and behavioural processes that are involved in effective or high emotional regulation abilities. More specifically, SMEs agreed that a child who is emotionally dysregulated faces difficulties with emotional appraisal (e.g., is unable to label or understand feelings when they arise) as well as behavioural management (e.g., is unable to access suitable emotional regulation strategies). These difficulties interfere with goal-directed behaviour or what the child wants to do, ultimately leaving the child feeling overwhelmed and impaired. These findings lend support to Gratz and Roemer's (2004) notion that emotional dysregulation occurs when a child encounters difficulties with any or all of the cognitive or behavioural processes involved in effective emotional regulation.

Findings from the current study also highlight several noteworthy characteristics of childhood emotional dysregulation that distinguish it from behavioural difficulties or tantrums. Firstly, SMEs agreed that emotional dysregulation in early childhood involves a pattern of unmodulated responding. This suggests that, rather than a one-off occurrence such as a developmentally-appropriate tantrum, a child only experiences emotional dysregulation or is considered to be emotionally dysregulated when there is a clear pattern of difficulties with emotional regulation. Contrary to findings by Crowell et al. (2015), SMEs disagreed with the statement that emotional dysregulation is stable over time. These findings suggest that even though children may consistently struggle with emotional regulation, their difficulties are not necessarily stable across time (e.g., like a medical condition) and they will

be able to learn cognitive and behavioural strategies or modify their environments to eventually overcome these difficulties.

Secondly, SMEs agreed that emotional dysregulation in early childhood can apply to both positive and negative emotional responses. This suggests that while a child can become emotionally dysregulated when faced with intense feelings of sadness or fear, a child can also become emotionally dysregulated when faced with intense feelings of excitement or happiness. In other words, children who struggle with emotional dysregulation are likely to encounter difficulties with the experience and expression of all intense emotions. This is consistent with previous findings that emotional dysregulation does not only apply to negative emotions but may manifest as elevated states of arousal or hyperactivity when intense feelings of joy or excitement are experienced (Herndon et al., 2013; Keenan, 2000).

Feedback from the first round to include an “It depends” option suggests that the way in which childhood emotional dysregulation manifests is likely to vary from child to child. More specifically, SMEs agreed that whether emotional dysregulation in early childhood causes emotional distress, is difficult to recover from, or consists of context inappropriate responses is likely to depend on several factors. According to SMEs, these factors include individual differences, such as trauma, attachment style, or temperament, as well as environmental factors, such as co-regulation skills of the caregiver. For example, the presence of an attuned and attentive caregiver is likely to aid in the soothing or co-regulation of an emotionally dysregulated child, making recovery less challenging than it would be for an emotionally dysregulated child who is alone or ignored by a caregiver. Unlike conditions such as Disruptive Mood Dysregulation Disorder (DMDD) or Major Depressive Disorder (MDD) with symptoms clearly outlined in their diagnostic criteria, there is likely to be some variability in how emotional dysregulation manifests in children which will have some important implications for both researchers and clinicians.

Implications

Findings from the current modified Delphi have several important implications. Firstly, the 13 definitional statements that gained consensus can be used to construct a definitional framework that can serve as a basis for future scientific inquiry to better understand childhood emotional dysregulation. Secondly, the definitional statements identified here can aid in the selection of a suitable assessment tool that can be used to reliably detect and measure emotional dysregulation from birth to eight years. Next, the definitional statements will aid in a deeper understanding of how emotional dysregulation should be treated in young children, circumventing the development of psychopathology later in life.

Strengths and Limitations

A noteworthy strength of the current study is that it is the first of its kind to bring SMEs together from North America and Singapore to discuss how emotional dysregulation in early childhood should be defined. The panel also consisted of experts from two disciplines (i.e., clinical psychology and educational psychology) which brought a balance of perspectives and practical experience. The use of the modified Delphi process has enabled communication that may have otherwise been impracticable due to geographical location and time constraints of busy SMEs. The anonymity of the Delphi method has also been helpful in overcoming issues with face-to-face or live groups, such as groupthink (Janis, 1982), to encourage honesty and a balanced consideration of ideas among experts (Iqbal & Pipon-Young, 2009). Another strength of the current study is that it has merged qualitative and quantitative approaches to provide a more comprehensive overview of how childhood emotional dysregulation in early childhood should be conceptualized.

A limitation of the current study is its low response rate. The second phase of the current project aimed to build on responses from “participants” in the first round (e.g.,

researchers in the field of childhood emotional dysregulation) by gathering feedback from SMEs or practitioners who met the criteria for subject matter expert. From the 60 SMEs who were approached to take part in the current study, seven SMEs participated in Round 1 and five SMEs participated in Round 2. Efforts were made to enhance response rates by following the guidelines recommended by Keeney et al. (2011). In addition to sending reminder emails, these recommendations included making potential participants feel that they are partners in the study by clearly explaining to them in the invitation the aims of the study, the anticipated number of rounds, and the expected time commitment. In order to minimize attrition between rounds, SMEs were provided with prompt feedback and the time between the first and the second round was limited to one week to keep members of the expert panel interested (Keeney et al., 2011). However, an alternative explanation for the study's low response rate could be that practitioners who were invited to participate did not, in fact, meet the study's expert criteria. Although there are no standardized criteria for Delphi panel size, feedback from additional SMEs working in other countries and cultures could have added to the richness of the study's findings.

Recommendations

The current study has identified the statements that SMEs agreed define emotional dysregulation in early childhood. The next step for this project is to use these findings to create a definitional framework that will bring researchers and practitioners one step closer to understanding how childhood emotional dysregulation can best be conceptualized (i.e., emotional dysregulation in early childhood as a continuous versus categorical variable). A definitional framework for childhood emotional dysregulation will be discussed in greater detail in the following chapter (Chapter 6: General Discussion). Specific to the current modified Delphi, there are several recommendations for further research. Namely, future studies can target specific regions that were not represented in the current study (e.g., Europe,

Australia, China) to establish whether SMEs from other parts of the world are in agreement with their North American and Singaporean counterparts. The modified Delphi approach has several merits, such as incorporating responses from a systematic review and overcoming geographical limitations, and can therefore be considered for future studies. However, to overcome the challenges of recruitment associated with this approach, future studies can consider offering a small incentive for SMEs to take time away from their busy schedules.

Chapter Conclusion

This chapter presented findings from a modified Delphi study. Seven subject matter experts (SMEs) were invited to rate their level of agreement and provide additional feedback on outcomes from a systematic review and thematic analysis (see Chapter 4: Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis). SMEs who participated in this study agreed that emotional dysregulation in early childhood should be conceptualized as a continuous variable that is synonymous with low emotional regulation. SMEs also agreed that 13 of the original 25 statements should be included in the definition of emotional dysregulation in early childhood. The next step for the current project is to establish a definitional framework based on the findings from Phases 1 and 2 and discuss results in relation to the project's aim (i.e., to establish whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders).

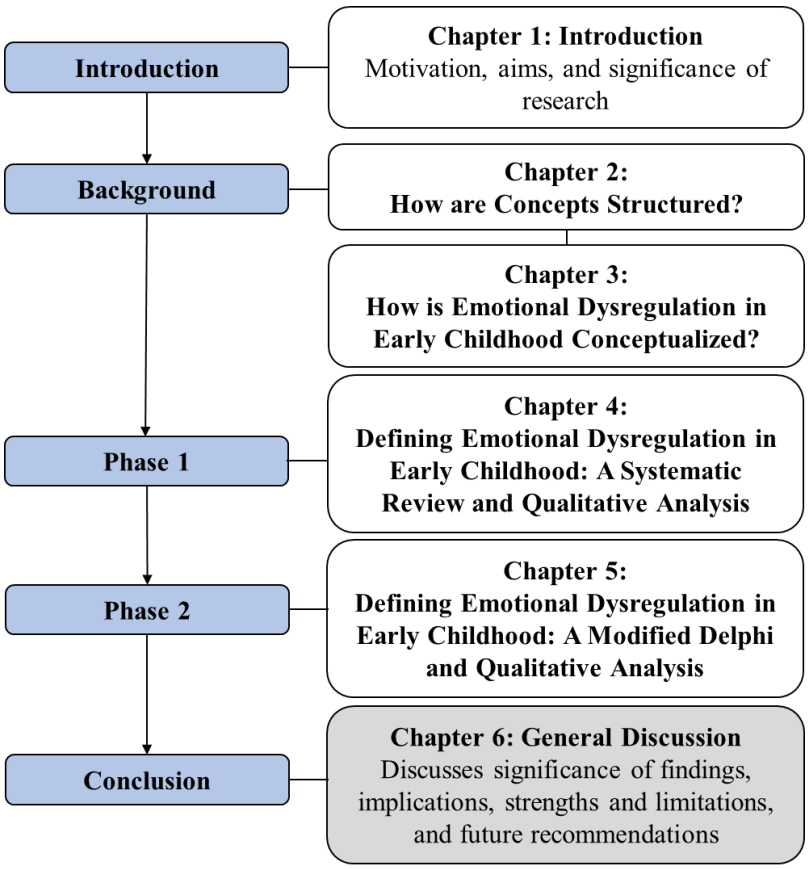
Chapter 6

General Discussion

In this concluding chapter, findings from both Chapters 4 (Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis) and 5 (Defining Emotional Dysregulation in Early Childhood: A Modified Delphi and Qualitative Analysis) are summarized and presented as a definitional framework for emotional dysregulation in early childhood. Findings from both phases are discussed in relation to the aims of the project and existing literature. Implications for researchers and practitioners, recommendations for future research, as well as strengths and weaknesses of the current project are also discussed.

Figure 6.1

Scope of Thesis



Summary of Key Results

The current lack of consensus over the conceptual approach to detecting and measuring emotional dysregulation in children from birth to 8 years old (i.e., continuous vs. categorical approaches) raised the question of whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders. The research reviewed in Chapter 2 (How are Concepts Structured?) highlighted the need for a valid and reliable definition before attempting to conceptualize or uncover the latent structure of a construct (Mullen, 2003). Thus, the current project aimed to inform the conceptualization of childhood emotional dysregulation by 1) exploring how emotional dysregulation is defined by both researchers and practitioners (e.g., clinical and educational psychologists) who assess and treat children struggling with emotional dysregulation and 2) constructing a definitional framework that can serve as a basis for future scientific inquiry in this area.

The project's aims were addressed in two phases. In the first phase (Chapter 4: Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis), scholarly literature from seven major databases was systematically reviewed to establish how emotional dysregulation in early childhood was defined and measured by researchers. The systematic review also identified all available measures of childhood emotional dysregulation and examined the relationship between how childhood emotional dysregulation is defined and measured in the literature. From the final 39 articles that met the selection criteria for the systematic review, 29 articles explicitly defined emotional dysregulation in early childhood while 32 articles featured a measure of childhood emotional dysregulation. Elements of constructivist grounded theory approach were incorporated into the qualitative analysis of the 29 articles that defined emotional dysregulation in young children generated five definitional categories and two potential definitional frameworks.

Definitional categories included (a) manifestation (i.e., how symptoms of childhood emotional dysregulation manifest emotionally, behaviourally, cognitively, and physically); (b) dimensional construct (i.e., how dysregulated responding exists on a continuum ranging from undercontrolled to overcontrolled); (c) duration (i.e., how emotional dysregulation persists); (d) distress (i.e., how emotional dysregulation can be distressing and cause impairment); and (e) development (i.e., how emotional dysregulation develops in early childhood and can be stable across time). Definitional categories were integrated and synthesized to form two proposed definitional frameworks for emotional dysregulation in early childhood. In scenario A, emotional dysregulation in early childhood was conceptualized as a continuous variable and defined as a phenomenon that is on the extreme end of a continuum that ranges from high to low regulation (i.e., synonymous with low emotional regulation). In Scenario B, emotional dysregulation in early childhood was conceptualized as a categorical variable and defined as a phenomenon that is separate and distinct from emotional regulation.

From the 32 articles that measured emotional dysregulation in early childhood, 18 assessment tools (9 behavioural observation methods, 5 parent reports, 4 teacher reports) were identified and reviewed in relation to how childhood emotional dysregulation was defined by researchers. The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a 24-item parent report measure used to assess emotional regulation and dysregulation in children between 6 and 12 years old, was the most commonly used assessment tool that was featured in seven of the final 32 empirical studies. Seventeen assessment tools conceptualized childhood emotional dysregulation as a continuous variable with higher scores suggesting greater emotional dysregulation. Only one assessment tool, the Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S; Denham et al., 2012), conceptualized childhood emotional dysregulation as a categorical variable. In that study by Herndon and colleagues

(2013), a child was considered to be emotionally dysregulated if he or she demonstrated any one of three criteria that defined dysregulated responding (i.e., (a) context-related interpersonal aggression; (b) hits, kicks, shoves, knocks over, or throws objects; and (c) unprovoked physical interpersonal aggression).

From the 18 measures of childhood emotional dysregulation that were identified in the systematic review, 16 assessment tools (i.e., 8 behaviour observation methods, 5 parent reports, 3 teacher reports) addressed three of the five categories that distinctively defined emotional dysregulation in early childhood (i.e., manifestation, distress, development). Essentially, 16 assessment tools included items that addressed how childhood emotional dysregulation manifests and develops, as well as how much distress it causes. The most frequently addressed definitional category was manifestation, where measures mainly included items that assessed how emotional dysregulation manifests emotionally and behaviourally in young children. Only two measures included items that addressed both manifestation and duration. For these two measures, scores from items were combined and higher scores suggested a greater degree of emotional dysregulation. Only one measure addressed the definitional category of distress. The remaining two categories (i.e., dimensional construct and development) were not addressed by any of the 18 measures of childhood emotional dysregulation.

To build on findings from the first phase of the current project, a modified Delphi was conducted to determine how emotional dysregulation in early childhood is defined by practitioners who are experienced in the assessment and treatment of emotional dysregulation in children from birth to 8 years old (Chapter 5: Defining Emotional Dysregulation in Early Childhood: A Modified Delphi). In this second phase, seven subject matter experts (SMEs) provided their opinions on whether childhood emotional dysregulation should be conceptualized using a categorical or continuum approach as well as their level of agreement

with findings from the current project's systematic review and grounded theory-based analysis (i.e., 25 definitional statements generated from five definitional categories). Following two rounds of online questionnaires, consensus was achieved for the inclusion of 13 of the original 25 definitional statements in the project's final definitional framework. The final 13 statements and their respective definitional categories are summarized in Table 6.1. Results also revealed that most SMEs agreed that emotional dysregulation in early childhood should be conceptualized as a continuous variable (i.e., synonymous with low emotional regulation) rather than a categorical variable (i.e., a disorder that is discretely separable from already-characterized childhood disorders).

Table 6.1

Final Definitional Statements and Categories

No.	Statement	Category
1	Emotional dysregulation involves multiple systems (e.g., cognitive, emotional, behavioural)	Manifestation
2	Emotional dysregulation can apply to both positive and negative emotional responses	Manifestation
3	Emotional dysregulation occurs when emotional responses are high in intensity	Manifestation
4	Emotional dysregulation occurs when a child is overwhelmed by an emotional response	Manifestation
5	Emotionally dysregulated children have difficulties appraising emotionally evocative situations	Manifestation
6	Emotional dysregulation occurs when regulatory attempts are ineffective	Manifestation
7	Emotional dysregulation involves poor behaviour self-management that results in disorganized behaviour	Manifestation
8	Emotional dysregulation interferes with appropriate behaviour	Manifestation
9	Emotional dysregulation occurs when there is a lack of effective emotional regulation	Manifestation
10	Emotional dysregulation causes significant physical and emotional impairment	Distress
11	Emotional dysregulation is a multifaceted phenomenon	Development
12	Emotional dysregulation develops in early childhood	Development
13	Emotional dysregulation implies a pattern of unmodulated emotional responding	Development

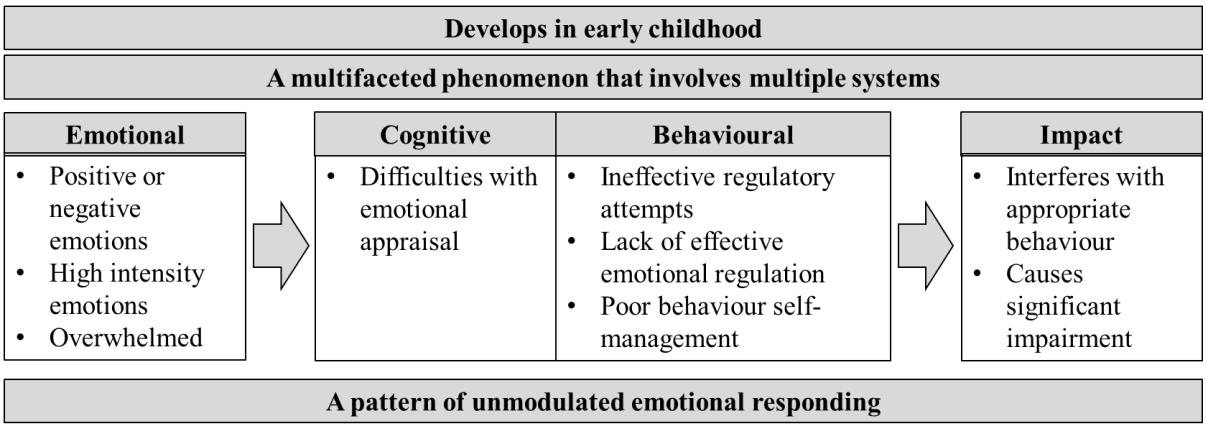
A Framework for Defining Emotional Dysregulation in Early Childhood

Findings from the current project's systematic review and modified Delphi culminate in a final definitional framework for emotional dysregulation in early childhood. Essentially, these findings suggest that childhood emotional dysregulation can best be understood through a framework that integrates 13 definitional statements and is anchored in three main definitional categories. Namely, how childhood emotional dysregulation manifests emotionally, cognitively, and behaviourally (manifestation), the resulting impact that emotional dysregulation has on children and the impairment it causes (distress), and the period of time when emotional dysregulation is likely to develop and how emotional dysregulation evolves over time (development).

Emotional dysregulation is therefore defined as a multifaceted phenomenon that develops in early childhood and involves multiple systems (i.e., emotions, cognition, and behaviour). A child is considered to be emotionally dysregulated when an emotional response is high in intensity and overwhelming, there are difficulties with emotional appraisal (e.g., is unable to label or understand feelings when they arise), and subsequent behavioural management is poor (e.g., is unable to access suitable emotional regulation strategies). These difficulties interfere with goal-directed behaviour or what the child wants to do, ultimately causing disorganized behaviour and impairment. Emotional dysregulation in early childhood applies to both positive and negative emotions and forms a pattern of unmodulated emotional responding. The proposed definitional framework for childhood emotional dysregulation is illustrated in Figure 6.2.

Figure 6.2

A Definitional Framework for Emotional Dysregulation in Early Childhood



As the current project has found childhood emotional dysregulation to be synonymous with low emotional regulation capabilities (i.e., at the extreme end of an emotional regulation continuum), it is advantageous to discuss the current findings within the context of what is understood to be high emotional regulation capabilities. Based on the literature, high emotional regulation for young children is believed to involve age-appropriate (a) emotional awareness and understanding, (b) emotional acceptance, (c) the application of appropriate strategies to manage emotional responses, and (d) the ability to manage impulsive behaviours and behave in accordance with desired goals when faced with intense emotions (Gratz & Roemer, 2004; Southam-Gerow & Kendall, 2001). In other words, children who are able to regulate their emotions are able to assess the age-appropriate cognitive abilities to understand the type of emotion that is being experienced and apply the appropriate strategies to manage their emotions, feel better, and carry on with what they want to do. For a young child, emotional regulation efforts could either be intrinsic (e.g., self-soothing) or extrinsic (e.g., coregulation with an adult) (Cicchetti et al., 2006; Thompson, 1994).

The existing literature suggests that childhood emotional dysregulation occurs when a child encounters difficulties with any or all of the cognitive or behavioural processes involved in effective emotional regulation (Gratz & Roemer, 2004). This is consistent with

the current definitional framework where a child who is emotionally dysregulated is believed to face difficulties with emotional appraisal (e.g., is unable to label or understand feelings when they arise) as well as behavioural management (e.g., is unable to access suitable emotional regulation strategies). These difficulties interfere with goal-directed behaviour or what the child wants to do, ultimately leaving the child feeling overwhelmed and impaired.

Contrary to how childhood emotional dysregulation has been defined by researchers, the current definitional framework emphasizes undercontrolled responding over overcontrolled responding. More specifically, in the first phase of the current project (Chapter 4: Defining Emotional Dysregulation in Early Childhood: A Systematic Review and Qualitative Analysis) childhood emotional dysregulation was defined as a dimensional construct where dysregulated emotional responding was believed to exist along a continuum that ranges from extremely intense (or undercontrolled) responding to constricted (or overcontrolled) responding. In other words, an emotionally dysregulated child could either display behavioural difficulties (e.g., tantrums, aggression) or withdraw and completely "shut down".

However, in the second phase of the current project, results from a modified Delphi (Chapter 5: Defining Emotional Dysregulation in Early Childhood: A Modified Delphi and Qualitative Analysis) revealed that subject matter experts (SMEs) did not agree that childhood emotional dysregulation consists of constrictive or overcontrolled emotional responding (e.g., sleeping, withdrawing). Instead, SMEs agreed that childhood emotional dysregulation involves poor behaviour self-management that results in disorganized behaviour (e.g., extreme or inappropriate behavioural reactions), which is more aligned with undercontrolled responding. A possible explanation for why SMEs did not endorse overcontrolled or constricted responding as a defining feature of childhood emotional dysregulation could be that behaviours such as withdrawing or shutting down are not

considered to be “problematic” or dysfunctional. As a result, children who exhibit overcontrolled emotional responding are also less likely to be referred for psychological intervention.

The current definitional framework also conceptualizes childhood emotional dysregulation as a mental health condition and highlights the criteria that distinguishes childhood emotional dysregulation from developmentally appropriate childhood behaviour, such as tantrums and meltdowns. The term “emotional dysregulation” has been applied in a variety of settings (e.g., psychiatric, educational) and is commonly used to describe both children and adults who experience chronic difficulties managing their emotions (Keenan, 2000; Thompson, 1994). However, researchers have questioned whether common “challenging” childhood behaviours (e.g., attention seeking behaviour or throwing a tantrum to achieve a desired outcome) warrant the extreme label of “dysregulation” (Keenan, 2000). Concerns about the labels that adults give young children have emerged from arguments that developmentally appropriate childhood behaviours have been misdiagnosed and inappropriately pathologized by mental health professionals (Barbosa & Leite, 2020; Krieger & Stringaris, 2013).

Studies on child emotional development have found that children do not learn how to independently regulate their emotions until they are well into adulthood (Thompson, 1994). Variability in emotional regulation capabilities and the emergence of challenging behaviours, such as tantrums and meltdowns, are therefore expected as young children learn the skills necessary to manage overwhelming emotions. For example, a young child may have a meltdown in the corridor and refuse to enter the classroom on the first day of preschool. The child’s difficulty regulating feelings of fear and anxiety is understandable given the unfamiliar environment and the absence of his caregiver and co-regulator. How well children regulate their emotions has been found to be influenced by individual differences, such as a

child's temperament, as well as contextual factors, such as parenting behaviour (NICHD Early Child Care Research Network, 2004). However, emotional regulation skills generally improve, and the frequency and intensity of challenging behaviours decrease, with the development of cognition, speech and language capabilities (Thompson, 1994).

Throughout the course of childhood and adolescence, it is therefore understood that emotional regulation is a work in progress and difficulties with emotional regulation will inevitably occur from time to time. The current definitional framework suggests that children who often experience difficulties with emotional regulation are only considered to be emotionally dysregulated if they meet two specific criteria. Firstly, for a child to be considered to be emotionally dysregulated, a pattern of dysregulated emotional responding must be observed. Rather than a one-off occurrence, such as a tantrum at the supermarket or a meltdown on the first day of preschool, difficulties regulating emotions must be observed regularly enough to form an enduring and inflexible pattern of dysregulated responding. Essentially, it is clear that the child is not misbehaving (e.g., throwing a tantrum to get something he or she wants) but demonstrates genuine difficulties regulating emotions across a variety of settings. Secondly, patterns of dysregulated responding must apply to both positive and negative emotions. This means that an emotionally dysregulated child is just as likely to struggle with regulating feelings of excitement and joy as regulating feelings of sadness and anxiety.

Instead of developmentally appropriate childhood behaviour, the definitional features of childhood emotional dysregulation outlined in the current project fit the criteria for a mental health condition. Based on the "four Ds" approach to assessing psychiatric disorders (Davis, 2009), mental health conditions involve deviance (i.e., deviation from the norm), dysfunction (i.e., interference with occupational or social functioning), distress (i.e., emotional distress), and danger (i.e., danger to self or others). Based on the final 13

definitional statements from the current project, emotionally dysregulated children exhibit emotional and behavioural responses that deviate from the norm (deviance) and interfere with goal-directed behaviour (dysfunction). As a result, the child experiences emotional distress (distress). As emotional dysregulation in children often manifests as venting or externalizing behaviour (e.g., aggression, self-injurious behaviour), there is a possibility that their behaviour may result in harm to themselves or others (danger).

An Integrated Approach to Detection and Measurement

Findings from the current project suggest an integrated approach to the detection and measurement of childhood emotional dysregulation, where emotional dysregulation in early childhood is recommended to be a mental health disorder but conceptualized as a continuous variable. Based on the project's final definitional framework, emotional dysregulation in early childhood is considered to be a mental health condition as it deviates from developmentally appropriate behaviour, causes distress and dysfunction, and can be dangerous for children and others around them. On its own, the framework facilitates a categorical approach to detecting and measuring childhood emotional dysregulation by outlining specific diagnostic criteria (e.g., must involve a pattern of unmodulated responding, must affect both positive and negative emotions). Essentially, consistent with the approach to diagnosing most mental health disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the current definitional framework provides clinicians with the information needed to determine whether emotional dysregulation is present or absent for a young child.

At the same time, findings from the current project also suggest that the construct of childhood emotional dysregulation is continuous in nature. Essentially, results from both phases of the current project lend support to the notion that emotional dysregulation in early childhood exists on the extreme end of a continuum that ranges from high to low emotional

regulation capabilities (i.e., childhood emotional dysregulation is synonymous with low emotional regulation). In the first phase of the current project, results from the systematic review revealed that the most relevant and commonly used assessment tools conceptualized childhood emotional dysregulation using a continuous approach. For example, in the case of the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a child is considered to be emotionally dysregulated if he or she receives a low score on the emotional regulation subscale (ERC-ER) and a high score on the lability/negativity subscale (ERC-LN). Items are scored on a 4-point scale (1 = *never*, 4 = *almost always*). In the second phase of the project, subject matter experts (SMEs) were asked in the first round of the modified Delphi process whether a continuous or categorical approach would be most suitable in the detection and measurement of childhood emotional dysregulation. Most SMEs agreed that emotional dysregulation in early childhood should be conceptualized as a continuous variable (i.e., synonymous with low emotional regulation) rather than a categorical variable (i.e., a disorder that is discretely separable from already-characterized childhood disorders).

Taken together, these findings are in line with an emerging body of research that has highlighted the need to revise how psychiatric disorders are conceptualized by mental health professionals (Narrow & Kuhl, 2011). More specifically, researchers have argued that a categorical approach to assessment may not capture the true nature of a condition and it is necessary for categorical and continuum-based approaches to be integrated to enhance patient care (Narrow & Kuhl, 2011). An integrated approach to diagnosis and classification has already been introduced for a small number of conditions in the DSM-5 (e.g., autism spectrum disorder, substance use disorder) suggesting significant changes in the fields of psychiatry and psychology. As discussed in Chapter 2 (How are Concepts Structured?), an integrated approach to the detection and measurement of mental health disorders can be especially helpful for treatment planning. This is because an integrated approach provides

meaningful information about the frequency and severity of symptoms and shifts the focus away from whether a person is simply disordered or not (Ruscio & Ruscio, 2008). With this, emotional dysregulation in early childhood can be seen as an extreme and stressful version of a common childhood experience.

Implications

The current research project explored whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders. This was achieved by establishing how childhood emotional dysregulation is defined by researchers and practitioners and constructing a framework for defining emotional dysregulation in children from birth to 8 years old. The project's final definitional framework has several important implications for both research and clinical practice.

Firstly, as this is the first study to define childhood emotional dysregulation, the current framework adds new insight to the debate over the most suitable conceptual approach for detecting and measuring emotional dysregulation in children from birth to 8 years old (i.e., continuous vs. categorical approaches). Although defining emotional dysregulation in early childhood does not establish the construct's latent structure per se, the current findings will be offered to facilitate discussions regarding a suitable conceptual approach to assessment. The current definitional framework can also be used to foster future theory development and hypothesis testing that will contribute to the existing knowledge base on emotional dysregulation in early childhood.

Secondly, the current definitional framework provides researchers and practitioners with specific criteria that are required for a child to be considered to be emotionally dysregulated. The current definitional framework is anchored in three definitional categories (i.e., manifestation, impairment, development) and is characterized by the following criteria:

(a) Dysregulated emotional responding or an inability to effectively regulate intense emotions manifested cognitively as difficulties with emotional appraisal (e.g., is unable to label or understand feelings when they arise) and behaviourally as disorganized behaviour (e.g., is unable to access suitable emotional regulation strategies),

(b) Dysregulated emotional responding interferes with goal-directed behaviour and causes impairment,

(c) Dysregulated emotional responding applies to both positive and negative emotions,

(d) A pattern of dysregulated emotional responding is observed over time.

The criteria outlined here not only increase diagnostic accuracy but enable practitioners to distinguish childhood emotional dysregulation from developmentally appropriate childhood behaviours, such as meltdowns and tantrums. This will ultimately reduce the likelihood of misdiagnosing or unintentionally pathologizing young children who exhibit challenging behaviour. Based on the current findings, childhood emotional dysregulation is considered to be a mental health disorder. However, when diagnosing and subsequently treating childhood emotional dysregulation, it is important to acknowledge the need for a multi-dimensional and multi-level evolutionary approach to diagnosis and treatment that incorporates biological and behavioural data (Hayes et al., 2020).

Thirdly, the current definitional framework provides a basis for the selection of an appropriate measure that will aid in the accurate detection and measurement of childhood emotional dysregulation. This will help to ensure that children who are struggling with emotional dysregulation receive the timely intervention that they require. Based on findings from the project's systematic review, none of the assessment tools that were identified addressed all three definitional categories. The three definitional categories include how childhood emotional dysregulation manifests emotionally, cognitively, and behaviourally

(manifestation), the resulting impact that emotional dysregulation has on children and the impairment it causes (distress), and the period of time when emotional dysregulation is likely to develop and how emotional dysregulation evolves over time (development).

The most relevant assessment tool identified by the current project was The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a 24-item parent-report measure used to assess emotional regulation and dysregulation in children between 6 and 12 years old. Although the ERC only addresses one definitional category (i.e., manifestation), it takes the most in-depth look at how childhood emotional dysregulation manifests both emotionally and behaviourally. It is also the only measure of childhood emotional dysregulation that assesses dysregulated responding for both positive and negative emotional experiences. The ERC conceptualizes emotional dysregulation as a continuous variable with no concrete cut-off score, thus practitioners will benefit from an integrated approach to assessment whereby the criteria outlined by the final definitional framework will improve diagnostic accuracy. However, there are currently no assessment tools that can detect and measure emotional dysregulation in children from birth to 5 years old.

Fourthly, based on findings from the current project, the assessment of childhood emotional dysregulation would benefit from data collected from multiple sources rather than relying solely on just one source. As childhood emotional dysregulation has been found to imply a pattern of unmodulated emotional responding, it would be worthwhile to assess the presence or absence of a pattern of unmodulated emotional responding across both time and contexts. In other words, a practitioner would collate information about a child's emotional difficulties from parents, teachers, other caregivers, and their own first-hand observations when considering whether the child meets the criteria for childhood emotional dysregulation. However, based on the current findings, there are no indicators of duration or how long unmodulated emotional responding should be observed to be considered a pattern.

Finally, the current definitional framework has some important implications for treatment planning. Based on findings from the current project, childhood emotional dysregulation is characterized by difficulties with emotional appraisal and poor behavioural management that results in disorganized behaviour. Treating childhood emotional dysregulation should therefore target improving emotional awareness and managing behavioural responses to emotional experiences through exercises, such as mindfulness, distress tolerance, and relaxation. This approach to treatment is consistent with the existing literature on psychological intervention for emotional dysregulation in children and adolescents (Keeshin et al., 2021; Linehan, 1993; Reinke et al., 2018). These treatment approaches, that include Dialectical Behavior Therapy (DBT) for adolescents, Trauma-Focused Cognitive Behaviour Therapy (TF-CBT), Mindfulness Based Stress Reduction (MBSR) for parents and The Incredible Years Teacher Classroom Management Program (IY TCM) for educators, enhance individual emotional regulation capabilities but also emphasize the need for co-regulation in children and adolescents.

As childhood emotional dysregulation is believed to exist on the extreme end of an emotional regulation continuum, it is important for practitioners to understand how emotional regulation develops in early childhood. In doing so, practitioners will have a clear understanding of age-appropriate emotional regulation capabilities which will inform clinical decision-making and treatment planning. For example, for young children with limited cognitive, speech, and language capabilities (e.g., babies and toddlers), emotional regulation is likely to be extrinsic in nature and caregiver dependent. Thinking and talking about emotional experiences is central to learning how to regulate emotions, so emotional regulation (and co-regulation) in infancy and toddlerhood will most likely involve situation selection, modification, and distraction (Graziano et al., 2010). The current definitional framework also highlights how ineffective regulatory attempts result in disorganized

behaviour. According to the literature, sensory processing underlies human perception and shapes all behaviour (Germain, 2018). Thus, for young children especially, it might be worthwhile for psychologists to collaborate with occupational therapists to explore a child's sensory profile and exercises that promote sensory integration and organize the nervous system when treating childhood emotional dysregulation.

Strengths and Limitations

A noteworthy strength of the current project is that it has extended knowledge of an important topic through research. It is the first of its kind to define emotional dysregulation in children from birth to 8 years old. As discussed in this chapter, the final definitional framework presented here has several important implications for both research and clinical practice within the field of child psychology. Another noteworthy strength of the current project is that it combines both qualitative and quantitative research approaches in a mixed methods research design. Essentially, in the first phase of the current project, a systematic review of the literature was conducted to determine how childhood emotional dysregulation is defined by researchers. A qualitative approach to data analysis was used over a quantitative one as the systematic review focused primarily on conceptual issues, such as the terminology used by researchers to define childhood emotional dysregulation. This grounded theory-based approach facilitated a deep understanding of the subject matter. In the second phase of the current project, both qualitative and quantitative methods were used to analyse data collected from subject matter experts (SMEs) who participated in the modified Delphi process. Burnard's (1991) approach to content analysis was adapted to analyse responses provided by SMEs in the open-ended portion of the questionnaire. This qualitative component facilitated a deeper understanding of the definitional elements of childhood emotional dysregulation. The mixed methods research design not only provided a holistic approach to addressing the

current research question, but it also minimizes any unintentional researcher bias that may have been introduced through the systematic review process.

The current project being the first of its kind is a noteworthy strength. However, being the first of its kind also means a lack of previous research in this particular area of study (i.e., defining or conceptualizing childhood emotional dysregulation), which can be a limitation. More specifically, prior research in this area provides the theoretical foundations for the research question under investigation and enables researchers to evaluate and explain their findings within the context of these studies. A lack of research investigating how childhood emotional dysregulation is defined therefore impacts the credibility of the current findings. Measures were therefore taken at the project's conceptualization stage to enhance the validity of outcomes. Firstly, a mixed methods research design was used to integrate findings from multiple sources (i.e., how emotional dysregulation in early childhood is defined by both researchers and practitioners). Next, given how results found emotional dysregulation to exist on the extreme end of an emotional regulation continuum (i.e., emotional dysregulation in early childhood is synonymous with low regulation), findings were discussed within the context of research on emotional regulation in children. Nevertheless, findings from the current research project serve as a starting point and set the precedent for future research in the area of childhood emotional dysregulation. Recommendations for future research are discussed in the following section.

Recommendations

Based on findings from the current project, there are several recommendations for future research. Firstly, the current definitional framework should be operationalized so that that it translates into a highly reliable and valid means of capturing the construct of emotional dysregulation in early childhood. The current systematic review found the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) to be the most suitable measure of

childhood emotional dysregulation as it takes the most in-depth look at how symptoms manifest emotionally and behaviourally. However, the ERC does not take into consideration the impact that it has on goal-directed behaviour and impairment (distress) and how it develops over time (development). It also does not measure emotional dysregulation in children from birth to 5 years old. Thus, the field of childhood emotional dysregulation would benefit from the development of an assessment tool that specifically measures emotional dysregulation in children from birth to 8 years old and addresses the three definitional categories (i.e., manifestation, distress, and development) and 13 definitional statements (Table 6.1) discussed here.

Once childhood emotional dysregulation has been operationalized, research can focus on the development of a conceptual framework that will help to refine the current definition and establish the variables that predict and perpetuate emotional dysregulation in early childhood. The Research Domain Criteria (RDoC) framework, developed by the National Institute of Mental Health (NIMH), can be used to develop a more comprehensive picture by exploring the impact of biological, physiological, and behavioural components and mechanisms involved in childhood emotional dysregulation. More specifically, the RDoC can be used to explore how emotional dysregulation occurs within major domains of human neurobehavioural functioning (i.e., negative valence systems, positive valence systems, cognitive systems, systems for social processes, arousal systems, sensorimotor systems). According to the developers of this framework, these findings will aid in establishing symptom severity and degree of dysfunction (Casey et al., 2014). This will further inform clinical decision-making and treatment planning for practitioners who are working with young children who meet the criteria for childhood emotional dysregulation. From the literature reviewed in the current project, it was established that research in the field of childhood emotional dysregulation has been conducted largely in Western countries (refer to

Table 4.3: Summary of Final Journal Articles Included in Systematic Review). A conceptual framework would therefore be helpful to tease out any cultural differences that may apply to emotional dysregulation in early childhood (e.g., collectivistic versus individualistic cultures). Exploring the possible impact of culture on childhood emotional dysregulation goes beyond the scope of the current thesis and is not directly related to the goals of this project.

Finally, future research can focus on using statistical methods to uncover childhood emotional dysregulation's latent structure and finally address the question of which conceptual approach (i.e., continuous, categorical, or a combination of the two) is truly the most suitable.

Applying Research Findings to Professional Practice

In Chapter 1, I spoke about the motivation behind the current research project and the importance of accurately detecting and measuring emotional dysregulation in young children. The catalyst for this project was an incident that I experienced several years ago while working as an associate psychologist at a Voluntary Welfare Organization (VWO) in Singapore. This particular incident involved meeting with the parents of a child diagnosed with Autism Spectrum Disorder (ASD) who was suspected of being emotionally dysregulated. The parents were told by a multidisciplinary team of professionals that their child had been emotionally dysregulated at the centre on multiple occasions. However, they were not offered any explanation as to what emotional dysregulation actually was. At the time, I couldn't help but wonder if parents were walking away from the meeting thinking that there was now something else that was "wrong" with their child and if the team I was working with had unintentionally added to their stress levels.

Five years later, I am no longer with the VWO but am fortunate enough to still work with young children who are suspected of being emotionally dysregulated and their families. Reflecting now on that incident that initiated this research journey, I thought about how

things could have been different if I knew then what I know now about emotional dysregulation in early childhood. Essentially, I thought about how the current findings could have been applied to my own professional practice to ensure that that child and his family received the support that they needed. First and foremost, the current definitional framework would be used to guide the assessment process. Information would be gathered from parents and teachers to first determine whether the child is indeed emotionally dysregulated or if he is exhibiting challenging behaviours for some other reason. Being able to distinguish childhood emotional dysregulation from developmentally appropriate behaviours (e.g., tantrums, meltdowns) is essential to reduce any unnecessary stress and anxiety for parents and provide the appropriate intervention. If the child meets the criteria for childhood emotional dysregulation, the current definitional framework would be used to guide treatment planning. Given the child's young age, the child's treatment plan would target the enhancement of individual emotional regulation skills and co-regulation skills in parents. If the child experienced delays in speech and language development, a referral would be made to a speech therapist for intervention and to an occupational therapist who would assess the child's sensory profile and the need to implement sensory integration exercises to regulate the child's nervous system. I am certain that the assessment and treatment process for childhood emotional dysregulation will improve further as other researchers build on the findings discussed here. For now, I am thankful for the opportunity to deepen my understanding of childhood emotional dysregulation and apply this knowledge to the children and families that I work with.

Conclusion

Emotional dysregulation in young children has captured the attention of researchers in recent years. There has been a desire to better understand childhood emotional dysregulation as it has been associated with negative outcomes such as child adjustment difficulties

(Herdon et al., 2013), elevated parental stress levels (Chan & Neece; 2018), and the development of mental health issues in adulthood (Crowell et al., 2015; Keenan, 2000). To ensure that children receive the timely intervention that they need, detecting and measuring emotional dysregulation in young children accurately and reliably is essential. However, a lack of consensus over the conceptual approach to detecting and measuring emotional dysregulation in children from birth to 8 years old (i.e., continuous vs. categorical approaches) raised the question of whether emotional dysregulation in early childhood should be identifiable as a disorder that is discretely separable from already-characterized childhood disorders. To answer that question, the current project explored how childhood emotional dysregulation was defined by researchers and practitioners and constructed a definitional framework that would serve as a basis for future scientific inquiry in this area.

Based on the 4Ds approach to assessing psychiatric disorders (Davis, 2009), emotional dysregulation in early childhood can be considered a mental health condition as it deviates from developmentally appropriate behaviour, causes distress and dysfunction, and can be dangerous for children and others around them. Results from the current research project also revealed an integrative approach to the detection and measurement of childhood emotional dysregulation, where emotional dysregulation in early childhood is defined as a mental health disorder but conceptualized as a continuous variable. These findings are in line with an emerging body of research that has highlighted the need to revise how psychiatric disorders are conceptualized by mental health professionals and move towards a more integrative approach to assessment (Narrow & Kuhl, 2011). Taken together, findings from the current project have important implications for both researchers and practitioners. Most importantly, the current project has identified the most suitable assessment tool and outlined the criteria that will distinguish childhood emotional dysregulation from developmentally appropriate childhood behaviour. Although there is much more to be understood about

emotional dysregulation in early childhood, findings from the current project will serve as a starting point for further investigation in this upcoming and important area of research.

References

Achenbach, T. M., & Edelbrock, C. (1991). Child behavior checklist. *Burlington (Vt)*, *7*.

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles* (Vol. 30). Burlington, VT: University of Vermont, Research center for children, youth, & families.

Adrian, M., Zeman, J., & Veits, G. (2011). Methodological implications of the affect revolution: A 35-year review of emotion regulation assessment in children. *Journal of Experimental Child Psychology*, *110*(2), 171-197. https://doi.org/10.1016/j.jecp.2011.03.009

Althoff, R. R., Verhulst, F. C., Rettew, D. C., Hudziak, J. J., & van der Ende, J. (2010). Adult outcomes of childhood dysregulation: a 14-year follow-up study. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(11), 1105-1116. https://doi.org/10.1016/j.jaac.2010.08.006

Amédée, L. M., Tremblay-Perreault, A., Hébert, M., & Cyr, C. (2019). Child victims of sexual abuse: Teachers' evaluation of emotion regulation and social adaptation in school. *Psychology in the Schools*. http://dx.doi.org/10.1002/pits.22236

American Psychiatric Association. (1980). *Diagnostic and statistical manual*. Washington, DC: APA Press.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

Anastopoulos, A. D., Smith, T. F., Garrett, M. E., Morrissey-Kane, E., Schatz, N. K., Sommer, J. L., Kollins, S. H., & Ashley-Koch, A. (2011). Self-regulation of emotion, functional impairment, and comorbidity among children with AD/HD. *Journal of Attention Disorders, 15*(7), 583–592. https://doi.org/10.1177/1087054710370567

Avella, J. R. (2016). Delphi panels: Research design, procedures, advantages, and challenges. *International Journal of Doctoral Studies*, *11*, 305. http://www.informingscience.org/Publications/3561

Baker, J. K., Fenning, R. M., Crnic, K. A., Baker, B. L., & Blacher, J. (2007). Prediction of social skills in 6-year-old children with and without developmental delays: Contributions of early regulation and maternal scaffolding. *American Journal on Mental Retardation, 112*(5), 375-391. https://doi.org/10.1352/0895-8017(2007)112[0375:POSSIY]2.0.CO;2

Barbosa, M. D. B., & Leite, C. D. P. (2020). Childhood and pathologization: Outlining the no-learning issue. *Psicologia Escolar e Educacional*, *24*. http://dx.doi.org/10.1590/2175-35392020220707

Bartholomew, D. (2001). Factor analysis and latent structure: Overview. In International Encyclopaedia of the Social and Behavioral Sciences (Vol. 8, pp. 5249–5254).

Bates, J. E., Maslin, C. A., & Frankel, K. A. (1985). Attachment security, mother-child interaction, and temperament as predictors of behavior-problem ratings at age three years. *Monographs of the Society for Research in Child Development*, 167-193. https://doi.org/10.2307/3333832

Benarous, X., Consoli, A., Guilé, J. M., Garny de La Rivière, S., Cohen, D., & Olliac, B. (2017). Evidence-based treatments for youths with severely dysregulated mood: a qualitative systematic review of trials for SMD and DMDD. *European Child & Adolescent Psychiatry*, *26*, 5-23. https://doi.org/10.1007/s00787-016-0907-5

Berkovits, L., Eisenhower, A., & Blacher, J. (2017). Emotion regulation in young children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *47*, 68-79. https://doi.org/10.1007/s10803-016-2922-2

Berkovits, L. D., & Baker, B. L. (2014). Emotion dysregulation and social competence: Stability, change and predictive power. *Journal of Intellectual Disability Research, 58*(8), 765-776. https://doi.org/10.1111/jir.12088

Bess, T. L., & Harvey, R. J. (2002). Bimodal score distributions and the Myers-Briggs Type Indicator: Fact or artifact? *Journal of Personality Assessment, 78*(1), 176–186. https://doi.org/10.1207/S15327752JPA7801_11

Biederman, J., Petty, C. R., Day, H., Goldin, R. L., Spencer, T., Faraone, S. V., Surman, B. D., & Wozniak, J. (2012). Severity of the aggression/anxiety-depression/attention (AAA) CBCL profile discriminates between different levels of deficits in emotional regulation in youth with ADHD. *Journal of Developmental and Behavioral Pediatrics*, *33*(3), 236. https://doi.org/10.1097%2FDBP.0b013e3182475267

Blair, K. A., Denham, S. A., Kochanoff, A., & Whipple, B. (2004). Playing it cool: Temperament, emotion regulation, and social behavior in preschoolers. *Journal of School Psychology*, *42*(6), 419-443. https://doi.org/10.1016/j.jsp.2004.10.002

Blanco, C., Rubio, J. M., Wall, M., Secades-Villa, R., Beesdo-Baum, K., & Wang, S. (2014). The latent structure and comorbidity patterns of generalized anxiety disorder and major depressive disorder: a national study. *Depression and anxiety*, *31*(3), 214–222. https://doi.org/10.1002/da.22139

Braet, C., Theuwis, L., Van Durme, K., Vandewalle, J., Vandevivere, E., Wante, L., Moens, E., Verbeken, S., & Goossens, L. (2014). Emotion regulation in children with emotional problems. *Cognitive Therapy and Research*, *38*, 493-504. https://doi.org/10.1007/s10608-014-9616-x

Brown, E. D., & Ackerman, B. P. (2011). Contextual risk, maternal negative emotionality, and the negative emotion dysregulation of preschool children from economically

disadvantaged families. *Early Education and Development, 22*(6), 931-944. http://dx.doi.org/10.1080/10409289.2010.508033

Brumariu, L. E. (2015). Parent–child attachment and emotion regulation. *New Directions for Child and Adolescent Development*, *2015*(148), 31-45. https://doi.org/10.1002/cad.20098

Burnard, P. (1991). A method of analysing interview transcripts in qualitative research. *Nurse education today*, *11*(6), 461-466. https://doi.org/10.1016/0260-6917(91)90009-Y

Buss, A.H., & Plomin, R. *Temperament: Early developing personality traits*. Hillsdale, NJ: Erlbaum, 1984.

Caldwell, C. B., & Pianta, R. C. (1991). A measure of young children's problem and competence behaviors: The Early School Behavior Scale. *Journal of Psychoeducational Assessment*, *9*(1), 32-44. https://doi.org/10.1177/073428299100900103

Campbell, S. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology*, *12*(3), 467-488. https://doi.org/10.1017/S0954579400003114

Carlson, E. A., & Sroufe, L. A. (1995). Contribution of attachment theory to developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology, Vol. 1. Theory and Methods* (pp. 581–617). John Wiley & Sons.

Cary, C. E., & McMillen, J. C. (2012). The data behind the dissemination: A systematic review of trauma-focused cognitive behavioral therapy for use with children and youth. *Children and Youth Services Review, 34*(4), 748–757. https://doi.org/10.1016/j.childyouth.2012.01.003

Casey, B. J., Oliveri, M. E., & Insel, T. (2014). A neurodevelopmental perspective on the research domain criteria (RDoC) framework. *Biological Psychiatry*, *76*(5), 350-353. https://doi.org/10.1016/j.biopsych.2014.01.006

Caspi, A., & Shiner, R. (2008). Temperament and personality. https://psycnet.apa.org/doi/10.1002/9781444300895.ch14

Catanzaro, S. J., & Mearns, J. (1990). Measuring generalized expectancies for negative mood regulation: Initial scale development and implications. *Journal of Personality Assessment*, *54*(3-4), 546-563. https://doi.org/10.1080/00223891.1990.9674019

Chan, N., & Neece, C. L. (2016). Parenting stress and emotion dysregulation among children with developmental delays: the role of parenting behaviors. *Journal of Child and Family Studies*, *27*, 4071-4082. https://doi.org/10.1007/s10826-018-1219-9

Chang, H., Shelleby, E. C., Cheong, J., & Shaw, D. S. (2012). Cumulative risk, negative emotionality, and emotion regulation as predictors of social competence in transition to school: A mediated moderation model. *Social Development, 21*(4), 780-800. http://dx.doi.org/10.1111/j.1467-9507.2011.00648.x

Charmaz, K. (2003). Grounded theory. In J.A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (pp. 50–57). London: Sage.

Charmaz, K. (2006). *Constructing grounded theory.* London: Sage.

Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology*, *18*(3), 623-649. https://doi.org/10.1017/S0954579406060329

Cohen. (1983). The cost of dichotomization. *Applied Psychological Measurement, 7*(3), 249–253. https://doi.org/10.1177/014662168300700301

Coplan, R. J., Gavinski-Molina, M. H., Lagacé-Séguin, D. G., & Wichmann, C. (2001). When girls versus boys play alone: nonsocial play and adjustment in kindergarten.

Developmental Psychology, 37(4), 464-474. https://doi.org/10.1037/0012-1649.37.4.464

Creswell, J. W., & Poth, C. N. (2016). Qualitative inquiry and research design: Choosing among five approaches. Sage publications.

Crowell, S. E., Beauchaine, T. P., McCaulley, E., Smith, C. J., Stevens, A. L., & Sylvers, P. (2005). Psychological, autonomic, and serotonergic correlates of parasuicide among adolescent girls. *Development and Psychopathology*, *17*(4), 1105-1127. https://doi.org/10.1017/S0954579405050522

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, *135*(3), 495. https://psycnet.apa.org/doi/10.1037/a0015616

Crowell, S. E., Puzia, M. E., & Yaptangco, M. (2015). The ontogeny of chronic distress: Emotion dysregulation across the life span and its implications for psychological and physical health. *Current Opinion in Psychology*, *3*, 91-99. https://doi.org/10.1016/j.copsyc.2015.03.023

Cummings, E. M. (1987). Coping with background anger in early childhood. *Child Development*, 976-984. https://doi.org/10.2307/1130538

Cuthbert, B. N. (2014). The RDoC framework: facilitating transition from ICD/DSM to dimensional approaches that integrate neuroscience and psychopathology. *World Psychiatry*, *13*(1), 28-35. https://doi.org/10.1002/wps.20087

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science*, *9*(3), 458-467. https://doi.org/10.1287/mnsc.9.3.458

David. (2010). Why we need more debate on whether psychotic symptoms lie on a continuum with normality. *Psychological Medicine, 40*(12), 1935–1942. https://doi.org/10.1017/S0033291710000188

Davis, E. P., & Thompson, R. A. (2014). Prenatal foundations: Fetal programming of health and development. *Zero to Three, 34*(4), 6-11. https://openlab.bmcc.cuny.edu/ece-209-lecture-fall-2019-longley/wp-content/uploads/sites/77/2020/01/Davis-Thompson-2014.pdf

Davis, T. (2009). Conceptualizing psychiatric disorders using "Four D's" of diagnoses. *The Internet Journal of Psychiatry*, *1*(1), 1-5. https://print.ispub.com/api/0/ispub-article/5049

De Boeck, P., Wilson, M., & Acton, G. S. (2005). A Conceptual and Psychometric Framework for Distinguishing Categories and Dimensions. *Psychological Review, 112*(1), 129–158. https://doi.org/10.1037/0033-295X.112.1.129

Denham, S. A., Bassett, H. H., Thayer, S. K., Mincic, M. S., Sirotkin, Y. S., & Zinsser, K. (2012). Observing preschoolers' social-emotional behavior: Structure, foundations, and prediction of early school success. *The Journal of Genetic Psychology*, *173*(3), 246-278. https://doi.org/10.1080/00221325.2011.597457

Dvir, Y., Ford, J. D., Hill, M., & Frazier, J. A. (2014). Childhood maltreatment, emotional dysregulation, and psychiatric comorbidities. *Harvard Review of Psychiatry*, *22*(3), 149. https://doi.org/10.1097%2FHRP.0000000000000014

Edens, J. F., Marcus, D. K., Lilienfeld, S. O., & Poythress, N. G. (2006). Psychopathic, not psychopath: Taxometric evidence for the dimensional structure of psychopathy. *Journal of Abnormal Psychology (1965), 115*(1), 131–144. https://doi.org/10.1037/0021-843X.115.1.131

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*, *47*(3-4), 313-337. https://doi.org/10.1111/j.1469-7610.2006.01618.x

Eisenberg, N., Fabes, R. A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development*, *64*(5), 1418-1438. https://doi.org/10.1111/j.1467-8624.1993.tb02961.x

Emmons, R. A. (1987). Narcissism: Theory and measurement. *Journal of Personality and Social Psychology, 52*(1), 11–17. https://doi.org/10.1037/0022-3514.52.1.11

Ettekal, I., & Ladd, G. W. (2019). Development of aggressive-victims from childhood through adolescence: Associations with emotion dysregulation, withdrawn behaviors, moral disengagement, peer rejection, and friendships. *Developmental Psychopathology*. http://dx.doi.org/10.1017/S0954579419000063

Faraone, S. V., Rostain, A. L., Blader, J., Busch, B., Childress, A. C., Connor, D. F., & Newcorn, J. H. (2019). Practitioner Review: Emotional dysregulation in attention-deficit/hyperactivity disorder–implications for clinical recognition and intervention. *Journal of Child Psychology and Psychiatry*, *60*(2), 133-150. https://doi.org/10.1038/s41380-018-0070-0

Fenning, R. M., Baker, J. K., & Moffitt, J. (2018). Intrinsic and extrinsic predictors of emotion regulation in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *48*, 3858-3870. https://doi.org/10.1007/s10803-018-3647-1

Field, T. (1994). The effects of mother's physical and emotional unavailability on emotion regulation. *Monographs of the Society for Research in Child Development*, 208-227. https://doi.org/10.2307/1166147

Folk, J. B., Zeman, J. L., Poon, J. A., & Dallaire, D. H. (2014). A longitudinal examination of emotion regulation: Pathways to anxiety and depressive symptoms in urban minority youth. *Child and Adolescent Mental Health*, *19*(4), 243-250. https://doi.org/10.1111/camh.12058

Fossati, A., Beauchaine, T. P., Grazioli, F., Carretta, I., Cortinovis, F., & Maffei, C. (2005). A latent structure analysis of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Narcissistic Personality Disorder criteria. *Comprehensive Psychiatry, 46*(5), 361–367. https://doi.org/10.1016/j.comppsych.2004.11.006

Fraley, C. R., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of Strange Situation Behavior. *Developmental Psychology, 39*(3), 387–404. https://doi.org/10.1037/0012-1649.39.3.387

Fraley, C. R., Vicary, A. M., Brumbaugh, C. C., & Roisman, G. I. (2011). Patterns of stability in adult attachment: An empirical test of two models of continuity and change. *Journal of Personality and Social Psychology, 101*(5), 974–992. https://doi.org/10.1037/a0024150

Fraley, R. C., & Waller, N. G. (1998). Adult attachment patterns: A test of the typological model. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 77–114). The Guilford Press.

Frazier, Youngstrom, E. A., & Naugle, R. I. (2007). The latent structure of Attention-Deficit/Hyperactivity Disorder in a Clinic-Referred Sample. *Neuropsychology*, *21*(1), 45–64. https://doi.org/10.1037/0894-4105.21.1.45

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences, 30*(8), 1311-1327. https://doi.org/10.1016/S0191-8869(00)00113-6

Germain, T. (2018). Finding the body of the mind: Integrating occupational therapy's theories of mutual regulation and dysregulation into psychotherapy. *Journal of Infant, Child & Adolescent Psychotherapy, 17*(4), 295-309. http://dx.doi.org/10.1080/15289168.2018.1519756

Glaser, B., & Strauss, A. (1967). Grounded theory: The discovery of grounded theory. *Sociology the Journal of the British Sociological Association*, *12*(1), 27-49.

Giesbrecht, G. F., Leadbeater, B. J., & Macdonald, S. W. S. (2011). Child and context characteristics in trajectories of physical and relational victimization among early elementary school children. *Developmental Psychopathology, 23*(1), 239-252. http://doi.org/10.1017/S0954579410000763

Gill, D., Warburton, W., Simes, D., & Sweller, N. (2018). Group therapy for emotional dysregulation: Treatment for adolescents and their parents. *Child and Adolescent Social Work Journal*, *35*, 169-180. https://doi.org/10.1007/s10560-017-0510-8

Goldberg, R.L., & Thompson-Schill, S. L. (2009). Developmental "roots" in mature biological knowledge. *Psychological Science, 20*(4), 480–487. https://doi.org/10.1111/j.1467-9280.2009.02320.x

Goldstone, R. L., Kersten, A., & Carvalho, P. F. (2018). Categorization and concepts. *Stevens' Handbook of Experimental Psychology and Cognitive Neuroscience*, *3*, 275-317.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, *26*, 41-54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94

Graziano, P. A., Keane, S. P., & Calkins, S. D. (2010). Maternal Behavior and Children's Early Emotion Regulation Skills Differentially Predict Development of Children's

Reactive Control and Later Effortful Control. *Infant and Child Development*, *19*(4), 333–353. https://doi.org/10.1002/icd.670

Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224. https://www.wisebrain.org/media/Papers/EmotionsAntecedencesResponesReg.pdf

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348. https://psycnet.apa.org/doi/10.1037/0022-3514.85.2.348

Gullone, E., Hughes, E. K., King, N. J., & Tonge, B. (2010). The normative development of emotion regulation strategy use in children and adolescents: A 2-year follow-up study. *Journal of Child Psychology and Psychiatry*, *51*(5), 567-574. https://doi.org/10.1111/j.1469-7610.2009.02183.x

Gustafson, D. H., Shukla, R. K., Delbecq, A., & Walster, G. W. (1973). A comparative study of differences in subjective likelihood estimates made by individuals, interacting groups, Delphi groups, and nominal groups. *Organizational Behavior and Human Performance*, *9*(2), 280-291. https://doi.org/10.1016/0030-5073(73)90052-4

Gyurak, A., Gross, J. J., & Etkin, A. (2011). Explicit and implicit emotion regulation: A dual-process framework. *Cognition and Emotion*, *25*(3), 400-412. https://doi.org/10.1080/02699931.2010.544160

Hankin, B.L., Fraley, R. C., Lahey, B. B., & Waldman, I. D. (2005). Is depression best iewed avs a continuum or discrete category? A taxometric analysis of childhood and adolescent depression in a population-based sample. *Journal of Abnormal Psychology (1965), 114*(1), 96–110. https://doi.org/10.1037/0021-843X.114.1.96

Hankin, B. L., Snyder, H. R., Gulley, L. D., Schweizer, T. H., Bijttebier, P., Nelis, S., Toh, G., & Vasey, M. W. (2016). Understanding comorbidity among internalizing problems: Integrating latent structural models of psychopathology and risk mechanisms. *Development and Psychopathology*, *28*(4pt1), 987–1012. https://doi.org/10.1017/S0954579416000663

Hay, D. F., Castle, J., Davies, L., Demetriou, H., & Stimson, C. A. (1999). Prosocial action in very early childhood. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 40*(6), 905-916. https://doi.org/10.1017/S0021963099004254

Hayes, S. C., Hofmann, S. G., & Ciarrochi, J. (2020). A process-based approach to psychological diagnosis and treatment: The conceptual and treatment utility of an extended evolutionary meta model. *Clinical Psychology Review*, *82*, 101908. https://doi.org/10.1016/j.cpr.2020.101908

Herndon, K. J., Bailey, C. S., Shewark, E. A., Denham, S. A., & Bassett, H. H. (2013). Preschoolers' emotion expression and regulation: relations with school adjustment. *The Journal of Genetic Psychology, 174*(6), 642-663. https://doi.org/10.1080/00221325.2012.759525

Hipson, W. E., Gardiner, S. L., Coplan, R. J., & Ooi, L. L. (2017). Maternal Agreeableness Moderates Associations Between Young Children's Emotion Dysregulation and Socioemotional Functioning at School. *Journal of Genetic Psychology, 178*(2), 102-107. https://doi.org/10.1080/00221325.2016.1269715

Hofmann, S. G., Sawyer, A. T., Fang, A., & Asnaani, A. (2012). Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety*, *29*(5), 409-416. https://doi.org/10.1002/da.21888

Hoffman, C., Crnic, K. A., & Baker, J. K. (2006). Maternal depression and parenting: Implications for children's emergent emotion regulation and behavioral

functioning. *Parenting: Science and Practice*, *6*(4), 271-295. https://doi.org/10.1207/s15327922par0604_1

Hofmann, S. G., & Kashdan, T. B. (2010). The affective style questionnaire: Development and psychometric properties. *Journal of Psychopathology and Behavioral Assessment, 32*(2), 255-263. https://doi.org/10.1007/s10862-009-9142-4

Holmes, A. G. D. (2020). Researcher Positionality--A Consideration of Its Influence and Place in Qualitative Research--A New Researcher Guide. *Shanlax International Journal of Education*, *8*(4), 1-10. https://doi.org/10.34293/education.v8i4.3232

Hutchison, A. J., Johnston, L. H., & Breckon, J. D. (2010). Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example. *International Journal of Social Research Methodology*, *13*(4), 283-302. https://doi.org/10.1080/13645570902996301

Imms, C., Adair, B., Keen, D., Ullenhag, A., Rosenbaum, P., & Granlund, M. (2016). 'Participation': a systematic review of language, definitions, and constructs used in intervention research with children with disabilities. *Developmental Medicine & Child Neurology*, *58*(1), 29-38. https://doi.org/10.1111/dmcn.12932

Iqbal, S., & Pipon-Young, L. (2009). Methods: The Delphi method. A guide from Susanne Iqbal and Laura Pipon-Young. *Psychologist*, *22*(7), 598.

Jafar, A. J. (2018). What is positionality and should it be expressed in quantitative studies?. *Emergency Medicine Journal*, *35*(5), 323-324. doi: 10.1136/emermed-2017-207158corr1

Janis, I. L. (1983). *Groupthink* (pp. 2-13). Boston: Houghton Mifflin. http://agcommtheory.pbworks.com/f/GroupThink.pdf

Joshi, G., Wozniak, J., Fitzgerald, M., Faraone, S., Fried, R., Galdo, M., Furtak, S. L., Conroy, K., Kilcullen, J. R., Belser, A., & Biederman, J. (2018). High risk for severe

emotional dysregulation in psychiatrically referred youth with autism spectrum disorder: A controlled study. *Journal of Autism and Developmental Disorders*, *48*, 3101-3115. https://doi.org/10.1007/s10803-018-3542-9

Jun, J. S., Kim, R., Jung, H. M., Byun, J. I., Seok, J. M., Kim, T. J., Lim, J. A., Sunwoo, J. S., & Jung, K. Y. (2020). Emotion dysregulation in idiopathic rapid eye movement sleep behavior disorder. *Sleep*, *43*(2), zsz224. https://doi.org/10.1093/sleep/zsz224

Kabat-Zinn, J. (1990). Mindfulness-based stress reduction. *Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*, *467*.

Keenan, K. (2000). Emotion dysregulation as a risk factor for child psychopathology. *Clinical Psychology: Science and Practice, 7*(4), 418–434. https://doi.org/10.1093/clipsy.7.4.418

Keeney, S., McKenna, H., & Hasson, F. (2011). *The Delphi technique in nursing and health research*. John Wiley & Sons.

Keeshin, B. R., Bryant, B. J., & Gargaro, E. R. (2021). Emotional dysregulation: a trauma-informed approach. *Child and Adolescent Psychiatric Clinics*, *30*(2), 375-387. https://doi.org/10.1016/j.chc.2020.10.007

Kim, J., Carlson, G. A., Meyer, S. E., Bufferd, S. J., Dougherty, L. R., Dyson, M. W., Olino, T. M., & Klein, D. N. (2012). Correlates of the CBCL-dysregulation profile in preschool-aged children. *Journal of Child Psychology and Psychiatry*, *53*(9), 918-926. https://doi.org/10.1111/j.1469-7610.2012.02546.x

King, G., Strachan, D., Tucker, M., Duwyn, B., Desserud, S., & Shillington, M. (2009). The application of a transdisciplinary model for early intervention services. *Infants & Young Children*, *22*(3), 211-223. doi:10.1097/IYC.0b013e3181abe1c3

Kochanska, G. (1995). Children's temperament, mothers' discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development*, *66*(3), 597-615. https://doi.org/10.1111/j.1467-8624.1995.tb00892.x

Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2009). Teacher observation of classroom adaptation—checklist: Development and factor structure. *Measurement and Evaluation in Counseling and Development*, *42*(1), 15-30. https://doi.org/10.1177/0748175609333560

Krieger, F. V., & Stringaris, A. (2013). Bipolar disorder and disruptive mood dysregulation in children and adolescents: assessment, diagnosis and treatment. *BMJ Mental Health*, *16*(4), 93-94. http://dx.doi.org/10.1136/eb-2013-101400

Langlands, R. L., Jorm, A. F., Kelly, C. M., & Kitchener, B. A. (2008). First aid for depression: a Delphi consensus study with consumers, carers and clinicians. *Journal of Affective Disorders*, *105*(1-3), 157-165. https://doi.org/10.1016/j.jad.2007.05.004

Lederer, V., Loisel, P., Rivard, M., & Champagne, F. (2014). Exploring the diversity of conceptualizations of work (dis) ability: a scoping review of published definitions. *Journal of Occupational Rehabilitation*, *24*, 242-267. https://doi.org/10.1007/s10926-013-9459-4

Lee, C. A., Milich, R., Lorch, E. P., Flory, K., Owens, J. S., Lamont, A. E., & Evans, S. W. (2018). Forming first impressions of children: The role of attention-deficit/hyperactivity disorder symptoms and emotion dysregulation. *Journal of Child Psychology and Psychiatry*, *59*(5), 556-564. https://doi.org/10.1111/jcpp.12835

Leerkes, E. M., Blankson, A. N., & O'Brien, M. (2009). Differential effects of maternal sensitivity to infant distress and nondistress on social-emotional functioning. *Child Development, 80*(3), 762-775. http://dx.doi.org/10.1111/j.1467-8624.2009.01296.x

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of Internal Medicine*, *151*(4), W-65. https://doi.org/10.7326/0003-4819-151-4-200908180-00136

Lincoln. (2007). Relevant dimensions of delusions: Continuing the continuum versus category debate. *Schizophrenia Research, 93*(1), 211–220. https://doi.org/10.1016/j.schres.2007.02.013

Linehan, M. (1993). *Skills training manual for treating borderline personality disorder*. New York: Guilford Press.

Linehan, M. M., Bohus, M., & Lynch, T. R. (2007). Dialectical behavior therapy for pervasive emotion dysregulation: Theoretical and practical underpinnings.

Lubke, G., & Neale, M. C. (2006). Distinguishing between latent classes and continuous factors: Resolution by maximum likelihood? *Multivariate Behavioral Research, 41*(4), 499–532. https://doi.org/10.1207/s15327906mbr4104_4

Martin, R. P., Wisenbaker, J., Baker, J., & Huttunen, M. O. (1997). Gender differences in temperament at six months and five years. *Infant Behavior and Development*, *20*(3), 339-347. https://doi.org/10.1016/S0163-6383(97)90005-9

Masi, G., Muratori, P., Manfredi, A., Pisano, S., & Milone, A. (2015). Child behaviour checklist emotional dysregulation profiles in youth with disruptive behaviour disorders: clinical correlates and treatment implications. *Psychiatry Research*, *225*(1-2), 191-196. https://doi.org/10.1016/j.psychres.2014.11.019

Masyn, K. E., Henderson, C. E., & Greenbaum, P. E. (2010). Exploring the latent structures of psychological constructs in social development using the dimensional-categorical

spectrum. *Social Development (Oxford, England), 19*(3), 470–493. https://doi.org/10.1111/j.1467-9507.2009.00573.x

Maughan, A., & Cicchetti, D. (2002). Impact of child maltreatment and interadult violence on children's emotion regulation abilities and socioemotional adjustment. *Child Development, 73*(5), 1525-1542. https://doi.org/10.1111/1467-8624.00488

Mazefsky, C. A., & White, S. W. (2014). Emotion regulation: Concepts & practice in autism spectrum disorder. *Child and Adolescent Psychiatric Clinics*, *23*(1), 15-24. https://doi.org/10.1016/j.chc.2013.07.002

Meehl. (1962). Schizotaxia, schizotypy, schizophrenia. *The American Psychologist, 17*(12), 827–838. https://doi.org/10.1037/h0041029

Meehl, P. E. (1973). Manual for use with checklist of schizotypic signs. Retrieved from PR-73-5.pdf (umn.edu)

Meehl. (1995). Bootstraps taxometrics. Solving the classification problem in psychopathology. *The American Psychologist*, *50*(4), 266–275. https://doi.org/10.1037//0003-066X.50.4.266

Meehl, P. E., & Yonce, L. J. (1994). Taxometric analysis: I. Detecting taxonicity with two quantitative indicators using means above and below a sliding cut (MAMBAC procedure). *Psychological reports*.

Messman-Moore, T. L., & Ward, R. M. (2014). Emotion dysregulation and coping drinking motives in college women. *American Journal of Health Behavior*, *38*(4), 553-559. https://doi.org/10.5993/AJHB.38.4.8

Meyers, E., DeSerisy, M., & Roy, A. K. (2017). Disruptive mood dysregulation disorder (DMDD): an RDoC perspective. *Journal of Affective Disorders*, *216*, 117-122. https://doi.org/10.1016/j.jad.2016.08.007

Miller, A. L., Gouley, K. K., Seifer, R., Dickstein, S., & Shields, A. (2004). Emotions and behaviors in the head start classroom: Associations among observed dysregulation, social competence, and preschool adjustment. *Early Education and Development, 15*(2), 147-165. http://dx.doi.org/10.1207/s15566935eed1502_2

Morrell, J., & Murray, L. (2003). Parenting and the development of conduct disorder and hyperactive symptoms in childhood: a prospective longitudinal study from 2 months to 8 years. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 44*(4), 489-508. https://doi.org/10.1111/1469-7610.t01-1-00139

Mullen. (2003). Delusions: the continuum versus category debate. *Australian and New Zealand Journal of Psychiatry, 37*(5), 505–511. https://doi.org/10.1046/j.1440-1614.2003.01239.x

Narrow, W. E., & Kuhl, E. A. (2011). Dimensional approaches to psychiatric diagnosis in DSM-5. *Journal of Mental Health Policy and Economics*.

Newbronner, E., & Atkin, K. (2018). The changing health of Thalidomide survivors as they age: A scoping review. *Disability and Health Journal*, *11*(2), 184-191. https://doi.org/10.1016/j.dhjo.2017.09.004

NICHD Early Child Care Research Network. (2004). Affect dysregulation in the mother–child relationship in the toddler years: Antecedents and consequences. *Development and Psychopathology*, *16*(1), 43-68. https://doi.org/10.1017/S0954579404044402

Nigg, J. T., Goldsmith, H. H., & Sachek, J. (2004). Temperament and attention deficit hyperactivity disorder: The development of a multiple pathway model. *Journal of Clinical Child and Adolescent Psychology*, *33*(1), 42-53. https://doi.org/10.1207/S15374424JCCP3301_5

Nigg, J. T., Karalunas, S. L., Gustafsson, H. C., Bhatt, P., Ryabinin, P., Mooney, M. A., Faraone, S. V., Fair, D. A., & Wilmot, B. (2020). Evaluating chronic emotional

dysregulation and irritability in relation to ADHD and depression genetic risk in children with ADHD. *Journal of Child Psychology and Psychiatry*, *61*(2), 205-214. https://doi.org/10.1111/jcpp.13132

Niven, K., Totterdell, P., Stride, C. B., & Holman, D. (2011). Emotion regulation of others and self (EROS): The development and validation of a new individual difference measure. *Current Psychology, 30*(1), 53-73. https://doi.or/10.1007/s12144-011-9099-9

Norona, A. N., & Baker, B. L. (2017). The effects of early positive parenting and developmental delay status on child emotion dysregulation. *Journal of Intellectual Disability Research, 61*(2), 130-143. https://doi.org/10.1111/jir.12287

Okado, Y., & Bierman, K. L. (2015). Differential risk for late adolescent conduct problems and mood dysregulation among children with early externalizing behavior problems. *Journal of Abnormal Child Psychology*, *43*, 735-747. https://doi.org/10.1007/s10802-014-9931-4

Olatunji, B.O., Williams, B. J., Haslam, N., Abramowitz, J. S., & Tolin, D. F. (2008). The latent structure of obsessive-compulsive symptoms: A taxometric study. *Depression and Anxiety, 4*(11), 956–968. https://doi.org/10.1002/da.20387

Olson, S. L., Sameroff, A. J., Lansford, J. E., Sexton, H., Davis-Kean, P., Bates, J. E., Pettit, G. S., & Dodge, K. A. (2013). Deconstructing the externalizing spectrum: Growth patterns of overt aggression, covert aggression, oppositional behavior, impulsivity/inattention, and emotion dysregulation between school entry and early adolescence. *Development and Psychopathology*, *25*(3), 817-842. https://doi.org/10.1017/S0954579413000199

Olukotun, O., Mkandawire, E., Antilla, J., Alfaifa, F., Weitzel, J., Scheer, V., Olukotun, M., & Mkandawire-Valhmu, D. (2021). An analysis of reflections on researcher

positionality. *The Qualitative Report, 26*(5), 1411-1426. https://doi.org/10.46743/2160-3715/2021.4613

Orta, I. M., Corapci, F., Yagmurlu, B., & Aksan, N. (2013). The mediational role of effortful control and emotional dysregulation in the link between maternal responsiveness and Turkish preschoolers' social competency and externalizing symptoms. *Infant and Child Development, 22*(5), 459-479. http://dx.doi.org/10.1002/icd.1806

Overgaard, K. R., Aase, H., Torgersen, S., Reichborn-Kjennerud, T., Oerbeck, B., Myhre, A., & Zeiner, P. (2014). Continuity in features of anxiety and attention deficit/hyperactivity disorder in young preschool children. *European Child Adolescent Psychiatry, 23*(9), 743-752. https://doi.org/10.1007/s00787-014-0538-7

Pannucci, C. J., & Wilkins, E. G. (2010). Identifying and avoiding bias in research. *Plastic and Reconstructive Surgery*, *126*(2), 619–625. https://doi.org/10.1097/PRS.0b013e3181de24bc

Pat-Horenczyk, R., Cohen, S., Ziv, Y., Achituv, M., Asulin-Peretz, L., Blanchard, T. R., Schiff, M., & Brom, D. (2015). Emotion regulation in mothers and young children faced with trauma. *Infant Mental Health Journal*, *36*(3), 337-348. https://doi.org/10.1002/imhj.21515

Pat-Horenczyk, R., Ziv, Y., Asulin-Peretz, L., Achituv, M., Cohen, S., & Brom, D. (2013). Relational trauma in times of political violence: Continuous versus past traumatic stress. *Peace and Conflict: Journal of Peace Psychology*, *19*(2), 125. https://psycnet.apa.org/doi/10.1037/a0032488

Powers, A., Cross, D., Fani, N., & Bradley, B. (2015). PTSD, emotion dysregulation, and dissociative symptoms in a highly traumatized sample. *Journal of Psychiatric Research*, *61*, 174-179. https://doi.org/10.1016/j.jpsychires.2014.12.011

Quetsch, L. B., Wallace, N. M., McNeil, C. B., & Gentzler, A. L. (2018). Emotion regulation in families of children with behavior problems and nonclinical comparisons. *Journal of Child and Family Studies*. http://dx.doi.org/10.1007/s10826-018-1081-9

Reinke, W. M., Herman, K. C., & Dong, N. (2018). The incredible years teacher classroom management program: Outcomes from a group randomized trial. *Prevention Science*, *19*, 1043-1054. https://doi.org/10.1007/s11121-018-0932-3

Ren, Y., Wyver, S., Xu Rattanasone, N., & Demuth, K. (2016). Social competence and language skills in Mandarin-English bilingual preschoolers: The moderation effect of emotion regulation. *Early Education and Development, 27*(3), 303-317. http://dx.doi.org/10.1080/10409289.2015.1066639

Röll, J., Koglin, U., & Petermann, F. (2012). Emotion regulation and childhood aggression: Longitudinal associations. *Child Psychiatry & Human Development, 43*(6), 909-923. https://doi.org/10.1007/s10578-012-0303-4

Rowe, D. C., & Plomin, R. (1977). Temperament in early childhood. *Journal of Personality Assessment*, *41*(2), 150-156. https://doi.org/10.1207/s15327752jpa4102_5

Rubin, K. H., Coplan, R. J., Fox, N. A., & Calkins, S. D. (1995). Emotionality, emotion regulation, and preschoolers social adaptation. *Developmental Psychopathology, 7*(1), 49-62. https://doi.org/10.1017/S0954579400006337

Ruscio, & Ruscio, A. (2002). A structure-based approach to psychological assessment - Matching measurement models to latent structure. *Assessment (Odessa, Fla.)*, *9*(1), 4–16. https://doi.org/10.1177/1073191102009001002

Ruscio, & Ruscio, A. M. (2004). A conceptual and methodological checklist for conducting a taxometric investigation. *Behavior Therapy*, *35*(2), 403–447. https://doi.org/10.1016/S0005-7894(04)80044-3

Ruscio, & Ruscio, A. M. (2008). Categories and dimensions: Advancing psychological science through the study of latent structure. *Current Directions in Psychological Science: A Journal of the American Psychological Society*, *17*(3), 203–207. https://doi.org/10.1111/j.1467-8721.2008.00575.x

Ruscio, J., Zimmerman, M., McGlinchey, J. B., Chelminski, I., & Young, D. (2007). Diagnosing Major Depressive Disorder XI: A taxometric investigation of the structure underlying DSM-IV Symptoms. *The Journal of Nervous and Mental Disease, 195*(1), 10–19. https://doi.org/10.1097/01.nmd.0000252025.12014.c4

Saarni, C. (1984). An observational study of children's attempts to monitor their expressive behavior. *Child Development*, 1504-1513. https://doi.org/10.2307/1130020

Sackman, H. (1975). Summary Evaluation of Delphi. *Policy Analysis*, *1*(4), 693–718. http://www.jstor.org/stable/42784280

Samson, A. C., Phillips, J. M., Parker, K. J., Shah, S., Gross, J. J., & Hardan, A. Y. (2014). Emotion dysregulation and the core features of autism spectrum disorder. *Journal of Autism and developmental Disorders*, *44*, 1766-1772. https://doi.org/10.1007/s10803-013-2022-5

Sanson, A., Prior, M., Garino, E., Oberklaid, F., & Sewell, J. (1987). The structure of infant temperament: Factor analysis of the Revised Infant Temperament Questionnaire. *Infant Behavior and Development*, *10*(1), 97-104. https://doi.org/10.1016/0163-6383(87)90009-9

Savin-Baden, M., & Howell-Major, C. (2013). Qualititative research: The essential guide to theory and practice. *Qualitative Research: The Essential Guide to Theory and Practice. Routledge*.

Schardt, C., Adams, M. B., Owens, T., Keitz, S., & Fontelo, P. (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Medical Informatics and Decision Making*, *7*, 1-6. https://doi.org/10.1186/1472-6947-7-16

Schelble, J. L., Franks, B. A., & Miller, M. D. (2010). Emotion dysregulation and academic resilience in maltreated children. *Child & Youth Care Forum, 39*(4), 289-303. http://dx.doi.org/10.1007/s10566-010-9105-7

Scott, S., & O'Connor, T. G. (2012). An experimental test of differential susceptibility to parenting among emotionally-dysregulated children in a randomized controlled trial for oppositional behavior. *Journal of Child Psychology and Psychiatry, 53*(11), 1184-1193. http://dx.doi.org/10.1111/j.1469-7610.2012.02586.x

Sharma-Patel, K., & Brown, E. J. (2016). Emotion regulation and self blame as mediators and moderators of trauma-specific treatment. *Psychology of Violence*, *6*(3), 400. https://psycnet.apa.org/doi/10.1037/vio0000044

Shaw, P., Stringaris, A., Nigg, J., & Leibenluft, E. (2014). Emotion dysregulation in attention deficit hyperactivity disorder. *American Journal of Psychiatry*, *171*(3), 276-293. https://doi.org/10.1176/appi.ajp.2013.13070966

Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: the development and validation of a new criterion Q-sort scale. *Developmental Psychology*, *33*(6), 906. https://psycnet.apa.org/doi/10.1037/0012-1649.33.6.906

Siegel, D. J. (1999). *The developing mind: Toward a neurobiology of interpersonal experience*. Guilford Press.

Sneath, P. H., & Sokal, R. R. (1973). Numerical Taxonomy. *The principles and practice of numerical classification*.

Southam-Gerow, M. A., Kendall, P. C., & Weersing, V. R. (2001). Examining outcome variability: Correlates of treatment response in a child and adolescent anxiety clinic. *Journal of Clinical Child Psychology*, *30*(3), 422-436. https://doi.org/10.1207/S15374424JCCP3003_13

Srinivasan, K. (2007). Childhood psychopathology and autonomic dysregulation: Exploring the links using heart rate variability. *Journal of Indian Association for Child and Adolescent Mental Health*, *3*(4), 96-104. https://journals.sagepub.com/doi/pdf/10.1177/0973134220070403

Sroufe, L. A. (1979). The coherence of individual development: Early care, attachment, and subsequent developmental issues. *American Psychologist*, *34*(10), 834. https://psycnet.apa.org/doi/10.1037/0003-066X.34.10.834

Sroufe, L. A. (1997). *Emotional development: The organization of emotional life in the early years*. Cambridge University Press.

Stringaris, A., Maughan, B., & Goodman, R. (2010). What's in a disruptive disorder? Temperamental antecedents of oppositional defiant disorder: Findings from the Avon longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(5), 474-483. http://dx.doi.org/10.1016/j.jaac.2010.01.02

Surís, A., Holliday, R., & North, C. S. (2016). The evolution of the classification of psychiatric disorders. *Behavioral Sciences (Basel, Switzerland)*, *6*(1), 5. https://doi.org/10.3390/bs6010005

Thijs, J. T., Koomen, H. M. Y., de Jong, P. F., van der Leij, A., & van Leeuwen, M. G. P. (2004). Internalizing behaviors among kindergarten children: Measuring dimensions of social withdrawal with a checklist. *Journal of Clinical Child and Adolescent Psychology, 33*(4), 802-812. https://doi.org/10.1207/s15374424jccp3304_15

Thomas, A., & Chess, S. (1977). *Temperament and development*. Brunner/Mazel.

Thompson, R. A. (1990). Emotion and self-regulation. In R. A. Thompson (Ed.), *Nebraska Symposium on Motivation, 1988: Socioemotional development* (pp. 367–467). University of Nebraska Press.

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development*, 25-52. https://doi.org/10.2307/1166137

Tull, M. T., Bardeen, J. R., DiLillo, D., Messman-Moore, T., & Gratz, K. L. (2015). A prospective investigation of emotion dysregulation as a moderator of the relation between posttraumatic stress symptoms and substance use severity. *Journal of Anxiety Disorders*, *29*, 52-60. https://doi.org/10.1016/j.janxdis.2014.11.003

Waller, N. G., & Meehl, P. E. (1998). *Multivariate taxometric procedures: Distinguishing types from continua*. Sage Publications, Inc.

Waller, N. G., Putnam, F. W., & Carlson, E. B. (1996). Types of dissociation and dissociative types: A Taxometric analysis of dissociative experiences. *Psychological Methods, 1*(3), 300–321. https://doi.org/10.1037/1082-989X.1.3.300

Wang, C., Williams, K. E., Shahaeian, A., & Harrison, L. J. (2018). Early predictors of escalating internalizing problems across middle childhood. *School Psychology Quarterly*, 33(2), 200-212. https://doi.org/10.1037/spq0000218

Webster-Stratton, C., Reid, J., & Hammond, M. (2001). Social Skills and Problem-solving Training for Children with Early-onset Conduct Problems: Who Benefits? *The Journal of Child Psychology and Psychiatry and Allied Disciplines, 42*(7), 943-952. https://doi.org/10.1017/S0021963001007776

Webster-Stratton, C., Reid, M. J., & Hammond, M. (2004). Treating children with early-onset conduct problems: Intervention outcomes for parent, child, and teacher

training. *Journal of Clinical Child and Adolescent Psychology*, *33*(1), 105-124. https://doi.org/10.1207/S15374424JCCP3301_11

Weinberg, A., & Klonsky, E. D. (2009). Measurement of emotion dysregulation in adolescents. *Psychological Assessment, 21*(4), 616-621. https://doi.org/10.1037/a0016669

Westen, D., Muderrisoglu, S., Fowler, C., Shedler, J., & Koren, D. (1997). Affect regulation and affective experience: individual differences, group differences, and measurement using a Q-sort procedure. *Journal of Consulting and Clinical Psychology*, *65*(3), 429. https://psycnet.apa.org/doi/10.1037/0022-006X.65.3.429

Williams, K. E., & Sciberras, E. (2016). Sleep and self-regulation from birth to 7 years: A retrospective study of children with and without attention-deficit hyperactivity disorder at 8 to 9 years. *Journal of Developmental and Behavioral Pediatrics, 37*(5), 385-394. https://doi.org/10.1097/dbp.0000000000000281

Williford, A. P., Calkins, S. D., & Keane, S. P. (2007). Predicting change in parenting stress across early childhood: Child and maternal factors. *Journal of Abnormal Child Psychology, 35*(2), 251-263. https://doi.org/10.1007/s10802-006-9082-3

World Health Organization. (2020). Improving early childhood development. *WHO guideline.* World Health Organization.

Zarling, A. L., Taber-Thomas, S., Murray, A., Knuston, J. F., Lawrence, E., Valles, N. L., DeGarmo, D. S., & Bank, L. (2013). Internalizing and externalizing symptoms in young children exposed to intimate partner violence: examining intervening processes. *Journal of Family Psychology*, *27*(6), 945. https://psycnet.apa.org/doi/10.1037/a0034804

Zittel Conklin, C., & Westen, D. (2005). Borderline personality disorder in clinical practice. *American Journal of Psychiatry*, *162*(5), 867-875. https://doi.org/10.1176/appi.ajp.162.5.867

Appendix A: Sample Search Strings for Systematic Review

Scopus search string:

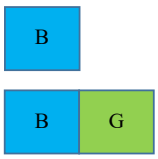
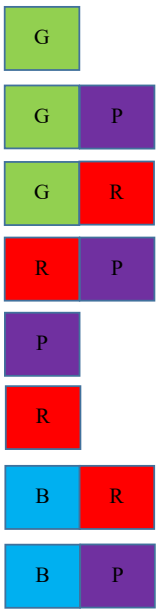
(TITLE-ABS-KEY ("emotion* dysregulation" OR "affect dysregulation" OR "emotion* dysfunction" OR "emotion* disorder" OR "affect* disorder" OR "impaired emotion* regulation" OR "imapired affect") AND TITLE-ABS-KEY ("early childhood" OR "pre-schooler" OR child* OR baby* OR infan* OR toddler* OR babies OR "primary school" OR "elementary school" OR "kindergarten")) AND DOCTYPE (ar OR re) AND PUBYEAR > 1988 AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (EXACTKEYWORD , "Child") OR LIMIT-TO (EXACTKEYWORD, "Emotional Disorder") OR LIMIT-TO (EXACTKEYWORD, "School Child") OR LIMIT-TO EXACTKEYWORD, "Preschool Child") OR LIMIT-TO (EXACTKEYWORD, "Child, Preschool") OR LIMIT-TO (EXACTKEYWORD, "Emotions") OR LIMIT-TO (EXACTKEYWORD, "Children") OR LIMIT-TO (EXACTKEYWORD, "Child Psychiatry") OR LIMIT-TO (EXACTKEYWORD, "Affective Neurosis") OR LIMIT-TO (EXACTKEYWORD, "Child Development") OR LIMIT-TO (EXACTKEYWORD, "Developmental Disorder") OR LIMIT-TO (EXACTKEYWORD, "Childhood") OR LIMIT-TO (EXACTKEYWORD, "Infant, Newborn")) AND (EXCLUDE (EXACTKEYWORD, "Adolescent") OR EXCLUDE (EXACTKEYWORD, "Adult") OR EXCLUDE (EXACTKEYWORD, "Attention Deficit Disorder") OR EXCLUDE (EXACTKEYWORD, "Attention Deficit Disorder With Hyperactivity") OR EXCLUDE (EXACTKEYWORD, "Schizophrenia") OR EXCLUDE (EXACTKEYWORD, "Posttraumatic Stress Disorder") OR EXCLUDE (EXACTKEYWORD , "Adolescents") OR EXCLUDE (EXACTKEYWORD , "Psychosis") OR EXCLUDE (EXACTKEYWORD, "Adolescence") OR EXCLUDE (EXACTKEYWORD, "Schedule For Affective Disorders And Schizophrenia") OR EXCLUDE (EXACTKEYWORD, "Adolescent Behavior") OR EXCLUDE (EXACTKEYWORD , "Aged") OR EXCLUDE (EXACTKEYWORD, "Learning Disorder") OR EXCLUDE (EXACTKEYWORD, "Socioeconomics")) AND (LIMIT-TO (SUBJAREA , "MEDI") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "NEUR") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "ARTS") OR LIMIT-TO (SUBJAREA , "HEAL"))

PubMed Central search string:

(("emotional dysregulation"[All Fields] NOT ("attention deficit disorder with hyperactivity"[MeSH Terms] OR ("attention"[All Fields] AND "deficit"[All Fields] AND "disorder"[All Fields] AND "hyperactivity"[All Fields]) OR "attention deficit disorder with hyperactivity"[All Fields] OR "adhd"[All Fields])) NOT ("schizophrenia"[MeSH Terms] OR "schizophrenia"[All Fields])) NOT "disruptive mood dysregulation disorder"[All Fields] AND ("loattrfull text"[sb] AND ("1989/01/01"[PDAT] : "2019/12/31"[PDAT]) AND "humans"[MeSH Terms] AND English[lang] AND ("child"[MeSH Terms:noexp] OR "child, preschool"[MeSH Terms] OR "infant"[MeSH Terms:noexp] OR "infant"[MeSH Terms] OR "infant, newborn"[MeSH Terms]))

Appendix B: Abstrackr Colour-Coded Words & Decision-Making Chart

Two thumbs up (B=blue):	Two thumbs down (R=red):
Emotional dysregulation Emotion dysregulation Affect dysregulation Emotional impairment Emotion impairment Low emotion regulation Low emotional regulation Emotion regulation difficulties Emotional regulation difficulties	Disruptive mood dysregulation disorder
One thumb up (G=green):	**One thumb down (P=purple):**
Emotion regulation Emotional regulation Early Childhood Child Preschool Infant Experiment Kindergarten Baby Babies Primary School Elementary School	Youth Teenager Adolescent Adolescence Adult Monkey Monkeys

INCLUDE	
EXCLUDE	

Appendix C: Summary of Psychometric Properties

No.	Measure	Author (Year)	Number of Items, Format	Reliability*
Observational Methods				
1	Disappointing Gift Task	Saarni (1984)	Children's responses coded for negative behaviour during a disappointing gift task. Each behaviour that was observed was coded as 1 point and summed.	Cronbach's α = .61
2	Person-Oriented Classification System	Cummings (1987)	15-minute simulated affective interaction between mother and research assistant coded for 16 discrete child emotional and behavioural responses.	Not reported
3	Emotional Dysregulation Coding System	Morrell & Murray (2003)	Infant behaviour coded for distress and irritability while completing the A not B task (i.e., a small toy is hidden under one of two cups). Distress and irritability scores are combined with higher scores indicating a greater degree of emotional dysregulation.	Not reported
4	Emotionally Negative Dysregulation Coding System	Miller et al. (2004)	Children's behaviour during 20 minutes of free play coded for seven emotion displays and dysregulation states. Coding yielded a continuous stream of behaviour states, which were reduced to yield a proportional duration score.	Coder reliability ranged from .57 to .96
5	Emotional Dysregulation Coding System	NICHD Early Child Care	Children's emotional and behavioural responses during a laboratory clean	Coder reliability ranged

No.	Measure	Author (Year)	Number of Items, Format	Reliability*
		Research Network (2004)	up task and interaction with their mothers are rated on a 5-point scale (1 = *not at all characteristic*; 5 = *very characteristic*). Higher scores suggest greater emotional dysregulation.	from .71 to .83
6	Dysregulation Coding System	Hoffman et al. (2006)	Emotional dysregulation subscale: Children are rated on a 5-point scale (0 = *no evidence of dysregulation*, 4 = *significant dysregulation*) while faced with an undesirable situation that required them to regulate their emotions. Ratings are based on type, duration, and intensity of emotional expressions, lability, and soothability.	Intraclass correlation = .90, ED subscale Cronbach's α = .79)
7	Emotion Dysregulation Index	Williford et al. (2007)	Children's behaviour coded for 7 emotional and behavioural responses on 3- to 7-point scales when faced with a frustrating task. Higher scores suggest greater emotional dysregulation.	Cronbach's α = .88
8	Minnesota Preschool Affect Checklist–Revised/Shortened (MPAC-R/S)	Denham et al. (2012)	Children's behaviour in classroom setting rated on emotional dysregulation subscale (3 items marked as either present or absent). Child is considered to be emotionally dysregulated if he or she displays any form of interpersonal aggression.	ED subscale, Cronbach's α = .56

No.	Measure	Author (Year)	Number of Items, Format	Reliability*
9	Emotional Dysregulation Coding System	Zarling et al. (2013)	Children's behaviour during independent laboratory tasks coded for 13 behaviours (marked as either present or absent). Children's behaviour during parent-child interaction coded for an additional 13 behaviours on a 5-point scale (ranging from "never" to "very often"). Children's behaviour during peer interaction coded for an undisclosed number of behaviours on a 5-point scale (ranging from "never" to "very often").	Intraclass correlation = .81
Parent Report Measures				
10	The Colorado Child Temperament Inventory (CCTI)	Buss & Plomin (1984); Rowe & Plomin (1977)	Combined scores from emotionality (5 items) and soothability (5 items) subscales.	Emotionality subscale, Cronbach's α = .80, retest = .72 Soothability subscale, Cronbach's α = .73, retest = .43
11	The Australian Temperament Scales (Infant and Child Version) Short-Form	Sanson et al. (1987)	4-item reactivity subscale. Items were rated on a 6-point scale (1 = a*lmost never*, 6 = a*lmost always*). Higher scores suggest greater emotional dysregulation.	Cronbach's α = .64 to .86
12	The Emotion Regulation Checklist (ERC)	Shields & Cicchetti (1997)	Emotional dysregulation was measured by combining emotional regulation (10 items) and lability/negativity (14	Cronbach's α = .89 (ER subscale, Cronbach's α = .83, LN

No.	Measure	Author (Year)	Number of Items, Format	Reliability*
			items) subscale scores or with individual lability/negativity subscale scores. Items are scored on a 4-point scale (1 = *never*, 5 = *almost always*). Higher lability/negativity subscale scores suggested greater emotional dysregulation.	subscale, Cronbach's α = .96)
13	The Child Behaviour Checklist-Dysregulation Profile (CBCL-DP)	Althoff et al. (2010)	Combined scores from the Attention, Aggression, and Anxiety/Depression subscales of the Child Behaviour Checklist (CBCL; Achenbach, 1991). Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Higher scores suggest a greater degree of emotional dysregulation.	Not reported
14	Child Behaviour Checklist-Emotional Dysregulation Index (CBCL-EDI)	Samson et al. (2014)	18 items taken from the CBCL. Items are rated on a 3-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *yes*). Scores are totalled and higher scores suggest a greater degree of emotional dysregulation.	Cronbach's *α* =.90
Teacher Report Measures				
15	The Early School Behaviour Scale (ESBS)	Caldwell & Pianta (1991)	4-item emotional dysregulation subscale. Items are rated on a 4-point scale to (1 = *hardly ever*, 4 = *almost always*). Higher scores suggest a greater degree of emotional dysregulation.	Not reported
16	Teacher's Report Form (TRF)	Olson et al. (2013)	5-item emotional dysregulation subscale. Items are rated on a 3-	Cronbach's *α* = .80 to .85

No.	Measure	Author (Year)	Number of Items, Format	Reliability*
			point scale (0 = *not true of the student,* 1 = *somewhat or sometimes true of the student*, 2 = *often or very true of the student*). Higher scores suggest a greater degree of emotional dysregulation.	
17	The Behaviour Questionnaire for Two- to Six-Year-Olds, Modified Version (BQTSYO-M)	Thijs et al. (2004)	5-item emotional dysregulation subscale. Items are rated on a on a 4-point scale (1 = *absolutely not characteristic*, 4 = *very characteristic*). Higher scores suggest a greater degree of emotional dysregulation.	Cronbach's αs $\geq$ .81
18	The Teacher Observation of Classroom Adaptation-Checklist (TOCA-C)	Koth et al. (2009)	Emotional dysregulation subscale (number of items not disclosed). Items are rated on a 6-point scale (1 = *never*, 6 = *almost always*). Higher scores suggest a greater degree of emotional dysregulation.	Cronbach's α = .86 to .96

Appendix D: Human Research Ethics Approval

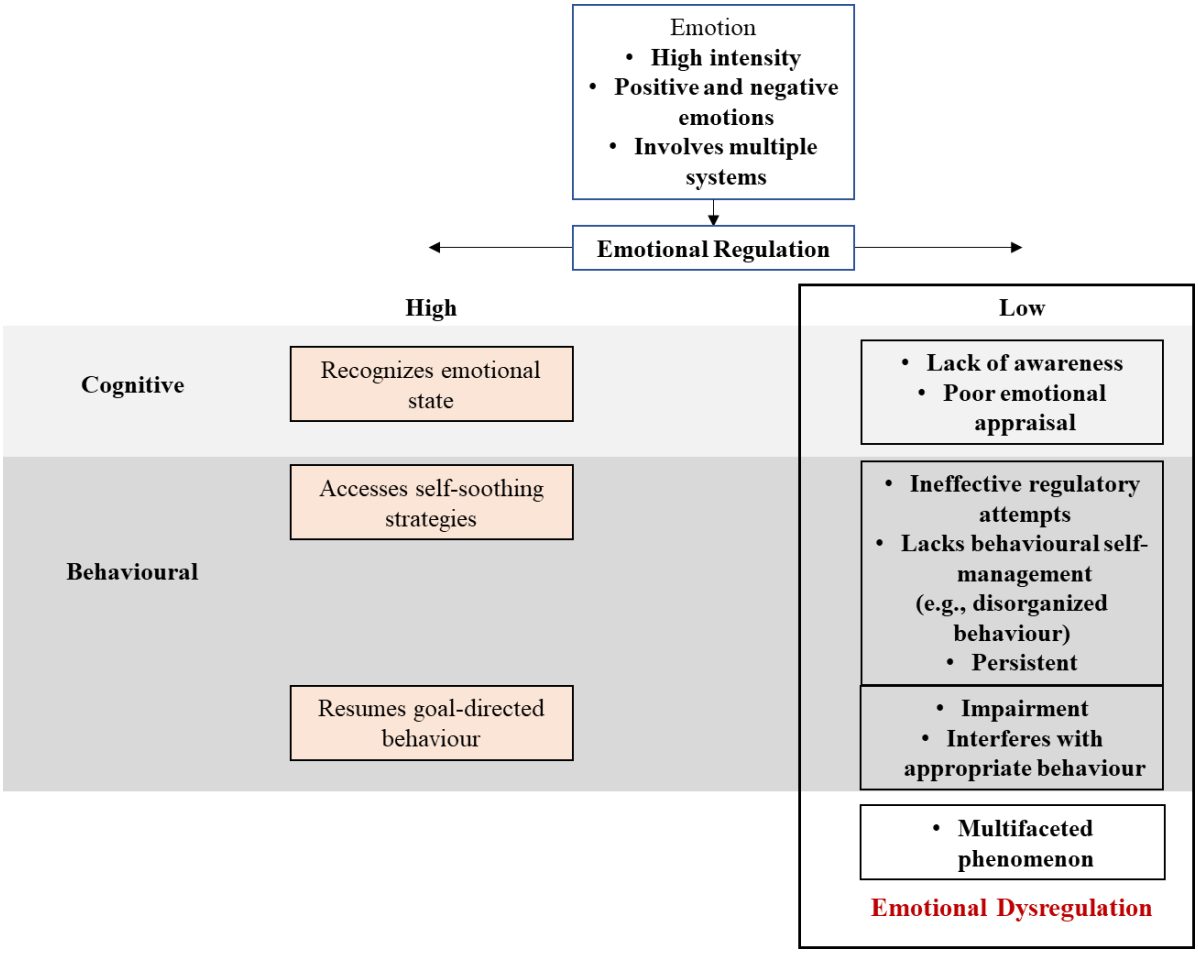
This administrative form has been removed

Appendix E: Scenarios A & B

Your expertise will assist us in determining which scenario (A vs. B) best defines emotional dysregulation in early childhood. Please study each scenario carefully and rate your level of agreement with the statements that follow. Take as much time as you need to review both scenarios as you will not be able to access this page once you proceed to the next part of the questionnaire.

Scenario A – Emotional Dysregulation in Early Childhood as a Continuous Variable

In Scenario A, emotional dysregulation in early childhood is **on the extreme end of a continuum** that ranges from high to low regulation. Essentially, emotional dysregulation in early childhood is synonymous with low emotional regulation and is characterized by poor emotional awareness and appraisal, ineffective regulatory attempts, and a lack of behavioural self-management. Emotional dysregulation ultimately results in impairment as it interferes with appropriate goal-directed behaviour.



Scenario B – Emotional Dysregulation in Early Childhood as a Categorical Variable

In Scenario B, emotional dysregulation in early childhood is a phenomenon that is **separate and distinct from emotional regulation**. Essentially, emotional dysregulation in early childhood refers to a persistent pattern of unmodulated emotional responses that develops in childhood and is stable across time. It is characterized by abnormal emotional reactivity and nonconstructive responses to emotions (e.g., overcontrolled or undercontrolled emotional responding strategies). It ultimately results in impairment as it interferes with appropriate goal-directed behaviour.