



Thinking about feeling: Using trait emotional intelligence in understanding the associations between early maladaptive schemas and coping styles

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Objectives. Maladaptive interpersonal schemas can trigger distressing emotions and drive dysfunctional behaviour that leads to difficulties in interpersonal relationships and perpetuates the original maladaptive schemas. This study sought to identify patterns of association between trait emotional intelligence (TEI), early maladaptive schemas (EMS), and coping styles in a non-clinical sample. Emotionality profiles were hypothesized to be associated with EMS severity and poorer coping, as early experiences can shape an individual's self-perceptions through reinforcement by maladaptive responses.

Design. Cross-sectional study with 142 undergraduate students.

Methods. We obtained self-reports of TEI, coping styles, and EMS.

Results. Disengagement coping was strongly correlated with EMS severity ($r = .565$, $p < .01$). TEI was negatively correlated with EMS ($r = -.660$, $p < .01$) and Disengagement ($r = -.405$, $p < .01$). Emotionality, Impaired Autonomy, and Overvigilance partially mediated the relationship between Disconnection and Emotion-Focused Disengagement. Self-Control fully mediated the relationship between Impaired Limits and Problem-Focused Disengagement.

Conclusions. The findings suggest that lower TEI is associated with the likelihood for maladaptive coping in response to EMS. The preference for certain coping styles associated with a particular domain of EMS may be explained by an individual's perceived metacognitive ability to regulate their stress and emotions. When individuals' needs for love, safety, and acceptance from others are not met, there might be poorer perceived self-efficacies in Emotionality and the tendency to cope through emotional avoidance. Individuals with difficulties establishing internal limits are more likely to respond with problem avoidance, possibly due to deficient distress tolerance. Longitudinal studies with a clinical population are warranted to replicate these findings.

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Practitioner points

- Clinicians will likely find it helpful to consider their clients' TEI to facilitate more individualized formulation and treatment planning, by considering whether related emotional regulation problems might be innate or a deficit in skills
- Implies the need to do more basic emotional regulation work to supplement and strengthen the established imagery work in schema therapy (ST).

Maladaptive interpersonal schemas (Arntz & Jacob, 2013), metacognitive disturbances (Dimaggio & Lysaker, 2010), and maladaptive coping (Dimaggio, 2014) have been identified as some of the core pathology associated with severe mental health problems. These constructs are broad in nature and appear in the literature in various guises. Briefly, interpersonal schemas are patterns of relating to oneself and others that are developed in childhood and provided generalized representations of interpersonal relationships that can be used to predict social interactions (see Scarvalone, Fox, & Safran, 2005; for a more detailed account). Young, Klosko, and Weishaar's (2003) early maladaptive schemas (EMS) are an interpretation of this construct, commonly used in both clinical and research settings, which are said to underlie psychopathology. Maladaptive interpersonal schemas can trigger distressing emotions and drive dysfunctional behaviour that leads to difficulties in interpersonal relationships and perpetuates the original maladaptive schemas.

Being able to understand the mental states of oneself and others is essential for navigating social interactions and forming interpersonal relationships (Carcione *et al.*, 2011). This ability has been operationalized in psychological research in a number of different ways including theory-of-mind (Baron-Cohen, Leslie, & Frith, 1985), mentalizing (Fonagy & Bateman, 2016), and metacognition (Semerari *et al.*, 2003). Metacognitive disturbance is a transdiagnostic process proposed to underlie core pathology associated with severe mental health problems such as personality disorders (PDs), addictions (Moeller & Goldstein, 2014), and schizophrenia (Lysaker, Gumley, & Dimaggio, 2011). Neurobiological evidence supports that both unique and common underlying brain systems are likely to be involved in these highly related processes (Gumley, 2011; Saxe & Wexler, 2005). Thus, limited metacognitive abilities are thought to contribute to a pattern of maladaptive self- and other-referential processing which is proposed to both give rise to, and maintain, maladaptive interpersonal schemas. In PDs, this involves overregulation of affect, which is associated with difficulty recognizing and expressing feelings, thus affecting an individual's functioning in interpersonal settings (Nicolò *et al.*, 2011).

Trait emotional intelligence (TEI; Petrides, Pita, & Kokkinaki, 2007), comprising emotion-related dispositions and self-perceptions, shares some overlap with emotional regulation (Peña-Sarrionandia, Mikolajczak, & Gross, 2015). Building on this, we suggest that TEI falls under the construct of metacognition and relates to maladaptive interpersonal schemas, perhaps underlying or perpetuating such schemas, and dysfunctional coping. We are proposing that certain emotionality profiles will be associated with more severe EMS and poorer coping; hence, we are exploring associations between notably Young's EMS, TEI, and Disengagement coping.

Early maladaptive schemas

Early maladaptive schemas are Young *et al.* (2003) theoretical understanding of maladaptive interpersonal schemas. EMS consist of negative core beliefs accompanied by emotions, memories, and bodily sensations. They develop when core emotional needs

are not adequately met during childhood. These core emotional needs include secure attachment to others, a sense of identity, freedom, play, and realistic limits. Eighteen EMS have been identified (Young *et al.*, 2003) and validated in various groups including patients with PDs (Nordahl, Holthe, & Haugum, 2005), mood and anxiety disorders (Hawke & Provencher, 2011), and veterans with post-traumatic stress disorder (Cockram, Drummond, & Lee, 2010), as well as across different cultures (Baranoff, Oei, Cho, & Kwon, 2006; Platts, Mason, & Tyson, 2005; Soygüt, Karaosmanoğlu, & Çakir, 2009). These 18 EMS fit under five higher-order domains (Güner, 2017; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002) which reflect the primary need not being met (e.g., the need for autonomy and structure is not met under the domain of Impaired Autonomy and Performance) and the likely negative characteristics of the early environment (e.g., enmeshed relationship between parents and children, overprotective parenting), as described by Young *et al.* (2003; see Table 2). The presence of EMS does not in itself lead to psychopathology; indeed, there is extensive research demonstrating that EMS exist on a spectrum and are present in the 'healthy' population (Dozois, Martin, & Bieling, 2009; Ehsan & Bahramizadeh, 2011; Shorey *et al.*, 2017; Zhu *et al.*, 2016). Rather, the development of psychopathology is, according to Young *et al.* (2003), dependent on the temperament of the individual and their early childhood experiences.

Operationalization of temperament in EMS research has typically used the five factor model and the psychobiological model of personality, for example when seeking to understand depression (Lim, Barlas, & Man Ho, 2018). Substantial overlap has been found between neuroticism, which describes individuals as worrying, insecure, self-conscious, and temperamental (McCrae & Costa, 1987) and EMS (Bahramizadeh & Ehsan, 2011; Daffern, Gilbert, Lee, & Chu, 2016; Thimm, 2010). Whilst it is helpful to understand these associations between personality traits and EMS, it adds little to our understanding of potential processes and mechanisms underlying maladaptive schemas.

This paper therefore seeks to consider the role of emotion-related dispositions and self-perceptions under the construct of TEI in relation to EMS. Emotional intelligence comprises competencies of perception, understanding, utilizing, and managing emotions effectively in the self and others (Schutte, Malouff, & Thorsteinsson, 2013). TEI captures individual differences in affective self-evaluations and organizes them into a single framework, thus integrating the emotion-related facets that are presently scattered across the basic personality dimensions (Petrides, Pita, *et al.*, 2007). Individuals with high TEI scores believe that they are in touch with their emotions and that they are capable of regulating them in a way that promotes well-being and happiness (Petrides & Furnham, 2003). A recent systematic review and meta-analysis demonstrated that TEI is able to account for differences in various areas of cognitive, emotional, and behavioural functioning beyond that explained by higher-order personality dimensions (Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016). Petrides, Pérez-González, and Furnham (2007) found it to be a better predictor of mood than the basic dimensions of personality dimensions.

Trait emotional intelligence appears to reflect aspects of self- and other-awareness within metacognition. Metacognition comprises three general functions: understanding one's own mind, understanding another's mind, and mastery of emotional distress and interpersonal difficulties (Semerari *et al.*, 2003). Broadly, metacognitive disturbances are associated with a range of psychopathology and with disorders such as schizophrenia and PDs (Lysaker *et al.*, 2011). Specifically, metacognitive disturbances have been suggested to be present in borderline PD (Maillard *et al.*, 2017) and to relate to over-control in PDs

(Dimaggio *et al.*, 2017; Popolo *et al.*, 2008). Furthermore, they are proposed as potential mechanisms of change in the treatment of PD (Maillard *et al.*, 2017; Popolo *et al.*, 2018).

The TEI factors of Emotionality and Self-Control describe similar processes to those conceptualized in metacognition. Emotionality, and its underlying facets, describes an individual's ability to perceive emotion in themselves and others (emotion perception), to communicate emotion-related thoughts (emotion expression), to see the world from someone else's perspective (empathy), and to develop emotional bonds with others (relationship). This shares some conceptual overlap with the metacognitive subfunctions of understanding one's own mind particularly monitoring thoughts and emotional states and differentiating between fantasy and reality and the subfunctions of understanding another's mind, particularly monitoring and deceneration. Self-Control, and its underlying facets, describes an individual's ability to regulate their emotions (emotional regulation), to handle pressure with successful coping strategies (stress management), and to reflect before making decisions (low impulsiveness). This shares some conceptual overlap with the metacognitive subfunctions of Mastery, particularly being able to self-soothe using physical, behavioural, and metacognitive strategies.

Trait emotional intelligence can be measured using a self-report measure, the trait emotional intelligence Questionnaire (TEIQue; Petrides & Furnham, 2003). The TEIQue has shown that TEI demonstrates incremental validity over social desirability, agreeableness, and emotional stability, as a predictor of emotional reactivity (Mikolajczak, Luminet, Leroy, & Roy, 2007; Petrides, 2009). Metacognition is currently measured using the Metacognition Assessment Scale (Semerari *et al.*, 2003) and its associated versions, the Metacognition Assessment Scale – Revised as used by Mitchell *et al.* (2012) and the Metacognition Assessment Scale – Abbreviated as used by Lysaker *et al.* (2005). It is a rating scale used to rate an individual's metacognitive ability operationalized by different functions. It is completed by trained raters using psychotherapy session transcripts to look for changes in metacognition and its subfunctions. Whilst it is acknowledged that an accurate understanding of metacognition is likely better achieved by a third-party rater, given its dependence on self-awareness, it is proposed that a self-report measure of TEI might be useful in clinical assessment. Assessing self-perceptions of Emotionality and Self-Control would allow a therapist to establish a basic understanding of some metacognitive processes relevant to both the development of psychopathology, and potential response to, and progress in, therapy.

Understanding how coping styles relate to TEI and EMS

Individuals develop coping styles, and related behavioural coping responses, as adaptations to avoid experiencing maladaptive interpersonal schemas and their accompanying intense and overwhelming emotions. Disengagement strategies such as avoiding problems, interpersonal situations, and the emotions they trigger are, broadly speaking, the most common type of maladaptive coping associated with psychopathology (Aldao *et al.*, 2010; Compas *et al.*, 2017).

Within Young's Schema Model, an avoidant coping style can be measured using the Young-Rygh Avoidance Inventory (Young & Rygh, 1994). However, very few studies have evaluated the psychometric properties of this questionnaire and its suitability to be used as a research tool has been questioned (Ghassemzadeh, Mojtabei, Karamghadiri, & Ebrahimkhani, 2005; Mairret, Boag, & Warburton, 2014).

It is therefore worthwhile considering more established and psychometrically sound measures of coping styles for use in EMS research. The Coping Strategies

Inventory (CSI; Tobin, Holroyd, Reynolds, & Wigal, 1989) looks broadly at the styles of engagement and disengagement, problem, and emotion-focused coping as outlined by the Transactional Theory (Lazarus & Folkman, 1987). The CSI has three levels of factors; a disengaged coping style comprises two second-order factors Problem-Focused Disengagement and Emotion-Focused Disengagement. Problem-focused Disengagement includes the third-order factors of problem avoidance and wishful thinking, whilst Emotion-Focused Disengagement includes the third-order factors of self-criticism and social withdrawal.

Possible relationships between trait emotional intelligence, EMS, and coping styles

We are proposing that certain emotionality profiles will be associated with more severe EMS and poorer coping. As early experiences can shape an individual's perceived emotional efficacy and abilities and these self-perceptions may be reinforced through maladaptive coping responses, we suggest that the factors of Emotionality and Self-Control in TEI are implicated in the development of EMS and disengaged coping.

In childhood, not having core emotional needs met by caregivers is likely to lead to problems with metacognition, such as difficulties in understanding the self and others in terms of mental states, such as needs, feelings, beliefs, desires, wishes, and goals (Fonagy & Target, 2006). As stated earlier, these crucial competencies share many similarities with the facets under the Emotionality factor in TEI, which include emotion perception and expression, empathy, and relationship. Over the course of development, poorer perceived self-efficacies in these areas may in turn be reinforced by actual deficiencies in understanding the one's own emotional states and empathizing and communicating such information with others. These factors are likely to impact forming emotional bonds with others and are likely to predispose development of EMS as children's perceptions and expectations of themselves, others, and the world around them would be skewed at both the cognitive and emotional level.

In adulthood, the maintenance and perpetuation of EMS are likely due to the continued influence of metacognitive disturbances and the use of unhelpful coping strategies. For instance, individuals who have a tendency to cope by adopting avoidant strategies, particularly to escape the distress of unpleasant situations, would have had fewer opportunities to learn how to exert control over their negative emotions or to attempt learning other methods of adaptation. This could be due to an underlying unwillingness or inability to tolerate distress, particularly unpleasant emotional states (Leyro, Zvolensky, & Bernstein, 2010). The individual experiences more urgency to seek relief, hence forming a negatively reinforcing process (Koole, 2009; Vervliet, Lange, & Milad, 2017). As these difficulties in regulating emotions, managing stress, and impulsivity (facets under the Self-Control factor in TEI) accumulate, they might find their EMS more easily triggered in difficult interpersonal or life situations. In turn, they will be less likely to opt for an engaged problem-focused way of coping such as reappraising the situation or problem-solving and more likely to respond with a disengaged coping strategy such as wishful thinking or problem avoidance. This could stand in the way of schema healing, as there will be fewer opportunities for them to challenge the EMS and to explore alternative ways of thinking and behaving.

In contrast, having high levels of Emotionality and Self-Control are likely to be associated with core beliefs that are generally more adaptive. This, in turn, points towards a tendency for effective (engaged) coping and could serve as protective factors against the development or perpetuation of EMS.

Study rationale

This study aimed to identify patterns of associations between schemas, emotional intelligence, and disengaged coping styles that are meaningful and helpful in the initial assessment phase of schema therapy (ST). We were particularly interested in the TEI factors of Emotionality and Self-Control because of their conceptual overlap with metacognitive functions, disengaged coping strategies because of their association with psychopathology and the EMS domains of Disconnection & Rejection (and its association with PD) and Impaired Limits (and its links to Self-Control). We hypothesized that low TEI would be associated with increased EMS severity and higher levels of disengagement coping strategies.

Secondly, we aimed to investigate the role of TEI domains in mediating the relationship between EMS domains and disengagement coping styles. We suggest that preference for certain coping styles in response to a particular domain of EMS may be explained by an individual's perceived ability to regulate their stress and emotions. Specifically, we hypothesized that Emotionality would mediate the relationship between Disconnection & Rejection and Emotion-Focused Disengagement and that Self-Control would mediate the relationship between Impaired Limits and Problem-Focused Disengagement.

The study used a non-clinical convenience sample for exploratory purposes to ensure generalizability to other populations rather than limiting the findings to any particular type of psychopathology. Due to the dimensional nature of the constructs of interest, the use of a non-clinical sample does not diminish its relevance and application to clinical samples. It is more suitable for investigating this novel application of the TEIQue and CSI in relation to EMS due to the completeness of representation of the possible relationships and the absence of any comorbid pathologies. Similarly, the study was cross-sectional in nature and did not attempt to explain the temporal order of development of the key constructs, not least because of the measurement of all constructs at one time in adulthood.

Understanding the links between TEI traits such as Emotionality and Self-Control and EMS and disengaged coping would be beneficial to PD research as these are all core pathologies associated with PDs. It would also be useful for clinicians using ST as it would encourage more focus on emotional regulation techniques such as emotional expression and distress tolerance in the present to complement the current approach of addressing overwhelming or suppressed emotions via imagery. Understanding the potential role TEI plays in predisposing and maintaining maladaptive disengagement coping in response to EMS would help with schema formulation and treatment planning.

Method

Participants

The sample comprised of 142 students from a Singaporean university (36% males, 64% females) with a mean age of 23.18 years ($SD = 4.97$, range 18–62). The sample consisted of ethnic Chinese (79%), Malay (2%), Indian (9%), and others (10%). Following ethics approval by the university's human research ethics committee, recruitment for the study participants was carried out through posters and the research pool. Students eligible for study credits were compensated accordingly at the end of the study.

Procedure

Study procedure

Recruitment was carried out through convenience and snowball sampling in a cross-sectional manner. Participants were informed that the questionnaires were regarding

schemas, emotional traits, and coping strategies, to minimize the social desirability bias of their responses. Informed consent was obtained from all individual participants included in the study. Each participant was invited to a study room and completed a paper form of the questionnaires in the following order: the TEIQue (Petrides & Furnham, 2003), the CSI (Tobin *et al.*, 1989), and the Young's Schema Questionnaire Short Form (YSQ-S3; Young, 2005), from the least to the most likely of causing possible distress in order to minimize the possibility of carry-over distress.

Statistical procedure

The authors scored the YSQ-S3 and CSI, but the London Psychometric Laboratory scored the TEIQue after collation of data. Descriptive statistics were computed for the demographic information, domain-level subscales, as well as mean total scores. Two-tailed independent samples *t*-tests were used to compare the average scores reported by males ($n = 51$) and females ($n = 91$) for all main variables. The *t*-tests were statistically significant with females scoring significantly higher ($M = 116.9$, $SD = 21.9$) than males ($M = 105$, $SD = 18.5$), $t(140) = -3.435$, $p < .001$ for Engagement and significantly higher ($M = 56.0$, $SD = 13.9$) than males ($M = 44.9$, $SD = 13.9$), $t(140) = -4.74$, $p < .001$ for Emotion-Focused Engagement. Males scored higher ($M = 51.2$, $SD = 13.4$) than females ($M = 45.6$, $SD = 14.4$), $t(140) = 2.42$, $p = .017$ for Emotion-Focused Disengagement. For TEI Emotionality, females also scored significantly higher ($M = 19.7$, $SD = 2.33$) than males ($M = 18.3$, $SD = 2.33$), $t(140) = -3.03$, $p = .003$. Given these gender differences, we included gender as a covariate in the later mediation analysis, to control for it as a confounding variable.

Statistical analyses were carried out using SPSS Statistics v23.0 (IBM Corp, Armonk, NY). Correlational analyses were implemented for domain-level subscales and total mean scores. Mediation analyses were implemented with the SPSS PROCESS macro (Hayes, 2013). We used a single-mediator model (refer to Figure 1) with 5,000 samples for bias-

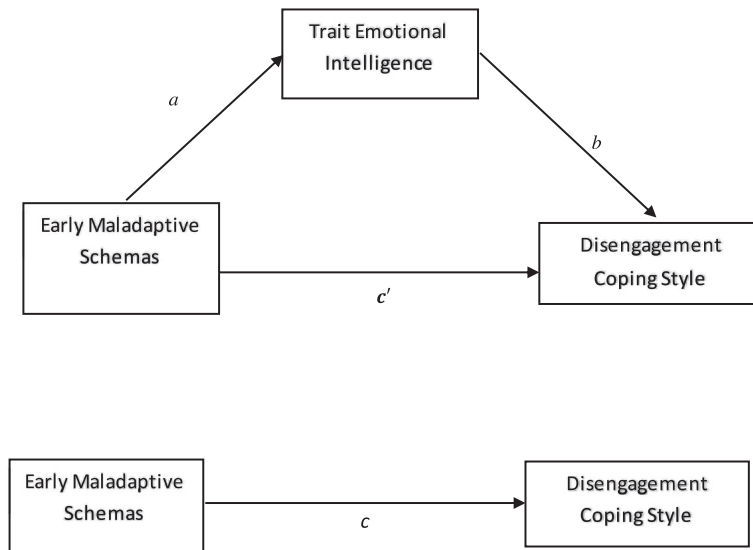


Figure 1. Direct effect (c') of early maladaptive schemas (EMS) affecting Disengagement coping and the indirect effect (ab) of EMS are hypothesized to exert an on Disengagement coping through trait emotional intelligence.

Table 1. Description and interpretation for trait emotional intelligence Questionnaire factors and facets

Factors	Facets	Interpretation
Well-being	Self-esteem	Overall evaluation of oneself
	Optimism	Well-being in a forward-looking manner
	Happiness	Pleasant emotional states primarily at the present moment
Self-Control	Emotion regulation	Short- to long-term control of own feelings and emotional states
	Stress management	Ability to handle pressure with effective coping strategies
	Low impulsiveness	Measure of low dysfunctional impulsivity
Emotionality	Emotion perception	Emotional perception in self and others
	Emotion expression	Ease of communicating emotion-related thoughts accurately and unambiguously
	Empathy	Ability for perspective taking and understanding other people's needs or desires
Sociability	Relationship	Personal relationship and emotional bonds with others
	Social awareness	Belief that one has social skills, adaptable, and perceptive
	Assertiveness	Ability to be forthright and frank
	Emotion management	Ability to manage other people's emotional state and to influence them

corrected bootstrap confidence intervals. In addition, we used the Sobel test of product-of-coefficients approach to determine the ratio of the indirect effect in relation to its estimated standard error.

Measures

Trait emotional intelligence Questionnaire

The TEIQue measures trait emotional intelligence, with scores on each scale reflecting the degree to which the respondent believes he/she possesses and displays the respective trait. It consists of 153 items rated on a 7-point Likert scale. The items form 13 facets, which load onto four factors: Well-being, Self-Control, Emotionality, and Sociability (Table 1). The sum of the scores from the four factors, as well as two additional facets (adaptability, self-motivation), gives the TEI global score. Scores reflect the degree to which the respondent believes he/she possesses and displays the respective trait, in the past year. Cronbach's alpha has been found to be excellent (above .70) for factor and global trait EI score in studies (Freudenthaler, Neubauer, Gabler, Scherl, & Rindermann, 2008; Mikolajczak *et al.*, 2007). Test-retest reliability was found to be acceptable with an intraclass correlation of .76 over 12 months (Azghandi, Memar, Taghavi, & Abolhassani, 2007).

Coping Strategies Inventory

The CSI (Tobin *et al.*, 1989) is a 72-item self-report questionnaire to assess coping through behaviour in response to a specific stressor described by the participant. To reduce study duration and minimize fatigue, participants for this study were instructed to recall and to think about the stressor instead of writing it down. Respondents then rated if they performed each coping response, within the past year, on a 5-point Likert scale (a = None to e = Very Much). Higher scores reflect a greater degree of utilizing the particular coping

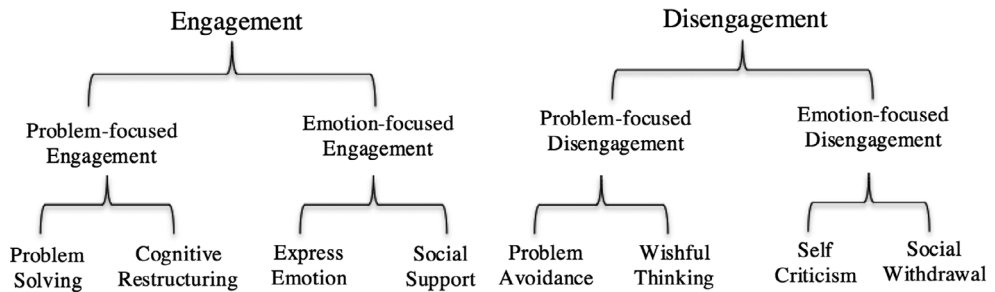


Figure 2. Hierarchical factor structure of coping (Tobin *et al.*, 1989).

strategy. The eight primary subscales consist of specific coping strategies (Figure 2), the second-order factors are Emotion- and Problem-focused Engagement and Disengagement, and two higher-order factors of Engagement and Disengagement. The items show good internal consistency with Cronbach's alpha ranging from .71 to .94 for the primary subscales as reported by Tobin *et al.* (1989), which were comparable to the range of .67 to .91 for this study.

Young's Schema Questionnaire Short Form

The 90-item YSQ-S3 (Young, 2005) measures EMS based on Young's schema theory and is a shortened form that contains the five highest loading items for each of the 18 schemas, which fit into five domains (Table 2). This self-report instrument requires individuals to rate each descriptive statement on a 6-point Likert-type scale ranging from 1 (completely untrue of me) to 6 (describes me perfectly) within a time frame of the past year. Higher ratings correspond to stronger schemas, reflecting more maladaptive and unhealthy core beliefs.

Results

Preliminary correlation analysis was carried out for the main study variables (Table 3). TEI global score is strongly negatively correlated with YSQ mean score ($r = -.660, p < .01$) and Disengagement coping ($r = -.405, p < .01$), but correlated positively with Engagement coping ($r = .371, p < .01$). The associations between Problem- and Emotion-focused Engagement are weak or non-significant with the EMS subscales. Disengagement coping is strongly positively correlated with YSQ mean ($r = .565, p < .01$).

Mediation analysis

Our mediational hypotheses were partially supported (Tables 4 and 5). Firstly, Emotionality (M) was significant in mediating the relationship between several predictor variables (X) and the outcome variable of Emotion-Focused Disengagement coping style (Y). Disconnection was negatively associated with Emotionality, $B = -0.87, t(139) = -5.73, p < .001$, and positively associated with Emotion-Focused Disengagement, $B = 1.89, t(139) = 6.19, p < .001$. Mediation effect was tested using bootstrapping with bias-corrected confidence estimates and the 95% confidence interval of the indirect effect was

Table 2. Domains and schemas of the YSQ-S3 (Young *et al.*, 2003)

Domains	Schemas	Description
Disconnection	Abandonment	Perceived instability or unreliability of those available for support and connection
	Mistrust/abuse	The expectation that others will hurt or take advantage of them
	Emotional deprivation	The expectation that one's desire for a normal degree of emotional support will not be adequately met
Impaired Autonomy and Performance	Defectiveness/shame	The feeling that one is defective, or would be unlovable to significant others if exposed; self-consciousness
	Social isolation	The feeling that one is different from other people or not part of any group or community
	Dependence/practical incompetence	The belief that one is unable to handle one's every responsibility in a competent manner without considerable help from others
	Vulnerability to harm/illness	Exaggerated fear that imminent catastrophe will strike and one will be unable to prevent it
	Enmeshment	Excessive emotional involvement with significant others at the expense of full individuation
Impaired Limits	Failure	The belief that one has/will inevitably fail; is fundamentally inadequate in areas of achievement
	Entitlement	The belief that one is superior to other people; not bound by the rules of reciprocity that guide normal social interaction; excessive competitiveness or domination
Other-Directedness	Insufficient Self-Control	Pervasive difficulty to refusal or to restrain the excessive expression of one's emotions and impulses
	Subjugation	Excessive surrendering of control to others in order to avoid anger, retaliation, or abandonment; suppression of one's preferences, decisions, desires, emotions
	Self-sacrifice	Excessive focus on voluntarily meeting the needs of others at the expense of one's own gratification
	Admiration/approval-seeking	Excessive emphasis on gaining approval, recognition, or attention from other people at the expense of developing a secure and true sense of self
Overvigilance	Negativity/pessimism	A pervasive focus on the negative aspects of life while minimizing the optimistic aspects
	Emotional inhibition	The excessive inhibition of spontaneous action, feeling, or communication; excessive rationality
	Unrelenting Standards Punitiveness	Perfectionism, rigid rules, or preoccupation with time and efficiency The believe that people should be harshly punished for making mistakes

Table 3. Pearson's *r* correlation coefficients of key study variables

Variables	Correlations													
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1 Disconnection														
2 Impaired Autonomy and performance	.65**													
3 Impaired Limits	.29**	.32**												
4 Other Directness	.55**	.55**	.25**											
5 Overvigilance	.64**	.52**	.26**	.52**										
6 Problem-focused Engagement	-.18*	-.17*	-.08	-.08	-.07									
7 Emotion-focused Engagement	-.20*	-.01	.14	.00	-.16	.41**								
8 Problem-Focused Disengagement	.26**	.33**	.20*	.32**	.33**	.05	.36**							
9 Emotion-Focused Disengagement	.56**	.48**	.17*	.37**	.56**	-.09	-.15	.47**						
10 Well-being	-.64**	-.64**	-.13	-.42**	-.44**	.38**	.26**	-.20*	-.46**					
11 Self-Control	-.46**	-.56**	-.41**	-.33**	-.25**	.26**	-.06	-.26**	-.27**	.53**				
12 Emotionality	-.44**	-.41**	-.17*	-.14	-.40**	.32**	.49**	-.04	-.40**	.49**	.39**			
13 Sociability	-.34**	-.51**	-.07	-.32**	-.28**	.25**	.10	-.22**	-.31**	.52**	.48**	.57**		
M	10.26	9.34	6.28	8.84	12.83	60.65	52.00	48.10	47.60	4.91	4.37	4.80	4.38	
SD	3.48	2.76	1.47	1.89	2.75	10.89	14.54	13.04	13.89	0.94	0.75	0.70	0.79	

Notes. *Correlation is significant at the 0.05 level (two-tailed).

**Correlation is significant at the 0.01 level (two-tailed).

Table 4. Effect of Emotionality as a mediator on the association between early maladaptive schemas (EMS) domains and Emotion-Focused Disengagement

Predictor (X)	Effect of EMS domain (X) on Emotionality (M)			Effect of Emotionality as a mediator (M) of Emotion-Focused Disengagement (Y)			Direct effect of Emotionality (X) on Emotion-Focused Disengagement (Y)			Indirect effect of EMS domain (X) on Emotion-Focused Disengagement (Y) through Emotionality (M)		
	a Path (SE)	95% CI	p-value	b path (SE)	95% CI	p-value	c' path (SE)	95% CI	p-value	db path (SE)	95% CI	Sobel test
Disconnection	-0.09*** (0.02)	-0.12, -0.06	<.001	-3.83* (1.53)	-6.86, -0.81	.013	1.90 (0.31)	1.29, 2.50	<.001	0.33* (0.16)	0.07, 0.71	Z = 2.27, p = .02
Impaired Autonomy	-0.10*** (0.02)	-0.13, -0.06	<.001	1.93*** (0.40)	1.15, 2.72	<.001	1.94 (0.40)	1.15, 2.72	<.001	0.49** (0.20)	0.15, 0.95	Z = 2.62, p = .009
Impaired Limits	-0.08 (0.04)	-0.16, -0.00	.49	-7.61*** (1.57)	-10.71, -4.52	<.001	0.98 (0.74)	-0.48, 2.44	.19	0.60 (0.40)	-0.11, 1.51	Z = 1.81, p = .07
Other	-0.05 (0.03)	-0.11, 0.009	.10	-7.07*** (1.48)	-9.99, -4.15	<.001	2.32 (0.54)	1.25, 3.40	<.001	0.37 (0.22)	-0.017, 0.87	Z = 0.36, p = .12
Overvigilance	-0.19 (0.02)***	-0.14, -0.06	<.001	-4.18** (1.49)	-7.14, -1.23	.0059	2.39 (0.38)	1.64, 3.13	<.001	0.42* (0.18)	0.11, 0.84	Z = 2.4, p = .02

Note. Bootstrap confidence interval produced by PROCESS with 5,000 samples for bias-corrected bootstrap confidence intervals. ***is significant at the .001 level; **is significant at the .01 level; *is significant at the .05 level.

Table 5. Effect of Self-Control as a mediator on the association between early maladaptive schemas (EMS) domains and Problem-Focused Disengagement

Predictor (X)	Effect of EMS domain (X) on self-control (M)			Effect of Self-Control as a mediator (M) of problem-focused Disengagement (Y)			Direct effect of Self-Control (X) on Problem-Focused Disengagement (Y)			Indirect effect of EMS domain (X) on Problem-Focused Disengagement (Y) through Self-Control (M)			Sobel test (normal theory test for indirect effect)
	a path (SE)	95% CI	p-value	b path (SE)	95% CI	p-value	c' path (SE)	95% CI	p-value	ab path (SE)	95% CI	Z	
Disconnection	-0.10 (0.16)	-0.13, -0.07	<.001	-3.10 (1.59)	-6.25, 0.036	.05	0.68 (0.34)	0.01, 1.36	.05	0.31 (0.18)	-0.06, 0.68	Z = 1.84, p = .07	
Impaired Autonomy	-0.15 (0.02)	-0.19, -0.11	<.001	-1.92 (1.67)	-5.23, 1.39	.25	1.28 (0.45)	0.39, 2.18	.005	0.29 (0.27)	-0.21, 0.83	Z = 1.13, p = .26	
Impaired Limits	-0.21 (0.04)	-0.28, -0.13	<.001	-3.77 (1.56)	-6.85, -0.69	.02	1.00 (0.79)	-0.57, 2.56	.21	0.78* (0.36)	0.18, 1.63	Z = 2.17, p = .03	
Other	-0.13 (0.03)	-0.19, -0.07	.0001	-3.03 (1.47)	-5.93, -0.13	.04	1.83 (0.58)	0.69, 2.97	.002	0.40 (0.23)	0.03, 0.97	Z = 1.81, p = .07	
Directedness	-0.07 (0.02)	-0.11, -0.01	.003	-3.37 (1.42)	-6.17, -0.57	.02	1.32 (0.38)	0.57, 2.08	<.001	0.22 (0.12)	0.05, 0.55	Z = 1.80, p = .07	

Note. Bootstrap confidence interval produced by PROCES with 5,000 samples for bias-corrected bootstrap confidence intervals.

*is significant at the .05 level.

obtained with 5,000 bootstrap resamples (Preacher & Hayes, 2008). The direct effect of Disconnection on Emotion-Focused Disengagement remained significant, $B = 1.89$, $t(139) = 6.19$, $p < .001$, suggesting partial mediation.

Similar results were found with Impaired Autonomy as the predictor, as it is also negatively associated with Emotionality, $B = -0.10$, $t(139) = -5.25$, $p < .001$, and positively associated with Emotion-Focused Disengagement, $B = 2.43$, $t(139) = 6.53$, $p < .001$. There was a bootstrapped unstandardized indirect effect of 0.49 (0.15; 0.95). Overvigilance is also negatively associated with Emotionality, $B = -0.10$, $t(139) = -5.16$, $p < .001$, and positively associated with Emotion-Focused Disengagement, $B = 2.80$, $t(139) = 7.93$, $p < .001$, with an unstandardized indirect effect of 0.42 (0.11; 0.84). All the above findings remained significant after gender was entered as a covariate into the models. Neither Impaired Limits nor Other Directedness was significantly associated with Emotionality (See Table 4).

Self-Control only mediated the relationship between Impaired Limits and Problem-Focused Disengagement (see Table 5), with a significant indirect effect of 0.78 (0.18; 1.63). Impaired Limits was negatively associated with Self-Control, $B = -0.21$, $t(139) = -5.27$, $p < .001$, and positively associated with Problem-Focused Disengagement, $B = 1.77$, $t(139) = 2.41$, $p = .017$. The effect of Impaired Limits on Problem-Focused Disengagement was no longer significant with Self-Control entered as a mediator, $B = 1.0$, $t(139) = 1.26$, $p = .21$, suggesting full mediation effect. However, there are very weak associations between Self-Control (M) and Problem-Focused Disengagement (Y) after partialling out the effect of the predictor (X) for the rest of the domains (Disconnection, Impaired Autonomy, Other Directedness, Overvigilance).

Discussion

This study aimed to identify patterns of associations between EMS, TEI, and coping styles, investigating whether the capacity for recognizing and managing thoughts and emotions in self and in others could play a role in the maintenance of dysfunctional coping and maladaptive interpersonal schemas. In addition, we suggest that TEI falls under the construct of metacognition and that certain emotionality profiles will be associated with more severe EMS and poorer coping. We also used the CSI to measure coping styles as current measures for assessing schema coping styles are not well validated. We were particularly interested in the TEI domains of Emotionality and Self-Control, in relation to emotion- and Problem-Focused Disengagement coping styles, and EMS severity.

We found a strong and significant negative association between EMS and a Disengagement coping style using a well-established measure of coping, supporting previous findings that EMS severity is associated with maladaptive coping (Dozois *et al.*, 2009). EMS severity typically reflects easier triggering of EMS by a wider range of emotions and situations and greater distress once the EMS has been triggered. A maladaptive coping response such as disengaging from the emotion or situation, akin to the avoidant coping style in schema theory, then likely provides an individual with immediate and short-term relief from the resultant distress. In support of this and related to specific psychopathology, disengagement coping has previously been found to be an avoidance mechanism mediating the relationship between EMS and anxiety and depression (Cámara & Calvete, 2012). This coping style becomes maladaptive in the long run because the EMS are not confronted and the underlying needs that led to the development of the EMS are still not being met appropriately.

TEI and engagement coping

Of greater interest in this study, we found strong negative associations between TEI and EMS and a disengagement coping style and a strong positive association between TEI and an engagement coping style. This latter relationship was particularly strong for the domain of Well-being under TEI, which includes self-perceptions of happiness, optimism, self-esteem. As individuals who reported greater optimism also have less severe EMS in all domains (other than Impaired Limits), the results imply that they are less susceptible to developing severe EMS. This is likely to be because, during stressful situations, individuals with higher trait EI possess a greater propensity for emotional regulation to downregulate various negative emotions and maintain positive ones (Mikolajczak, Nelis, Hansenne, & Quoidbach, 2008) and tend to use adaptive rather than maladaptive coping styles (Saklofske, Austin, Galloway, & Davidson, 2007). This is generally in line with research by Petrides, Pita, *et al.* (2007), who hypothesized that high TEI individuals are likely to employ rational and detached coping styles, rather than maladaptive emotional and avoidant coping styles. However, as Petrides (2011) pointed out, absolute TEI scores are less meaningful without an understanding of context. Schema theory may provide some understanding of context to explain why lower levels of TEI are related to maladaptive coping. EMS develop during early maladaptive childhood experiences when core needs are not met by caregivers. These experiences likely interact with and exacerbate poor emotional regulation skills to further consolidate EMS and maladaptive coping styles.

Emotionality

From the mediation analyses, we found evidence of the role played by the TEI domain of Emotionality in the relationship between EMS and coping styles, supporting the importance of emotion-related self-perceptions in perpetuating avoidant coping in response to negative interpersonal schemas. Emotionality mediated the relationships between Disconnection, Impaired Autonomy, Overvigilance, and Emotion-Focused Disengagement.

The relationship between Disconnection and Emotion-Focused Disengagement can be partially explained by an individual's level of Emotionality. This supports our prediction that when an individual's needs for love, safety, and acceptance from others are not met, the individual will likely have poorer perceived self-efficacies in Emotionality, emotional awareness, empathy, and emotional interpersonal skills, which in turn will be associated with a tendency to cope by avoiding or disengaging from these negative emotional experiences. Schema theory draws on attachment, object relations, and cognitive-behavioural theories (Young *et al.*, 2003). From attachment theory, it is known that individuals who experience insecure early attachments have poorer emotional regulation skills and engage in maladaptive coping (Wei, Russell, Young, & Heppner, 2006).

To a lesser extent, the relationships between early unmet needs of competence and autonomy and freedom to express valid needs and emotions and Emotion-Focused Disengagement can also be partially explained by an individual's level of Emotionality. Individuals with EMS in the Impaired Autonomy domain struggle to separate themselves and their emotional experiences from their caregivers and may worry excessively about future harm or failure. Individuals with EMS in the Overvigilance domain tend to suppress their feelings to focus on rigid rules or standards. These individuals' tendency to then cope via self-criticism and social withdrawal can be explained by their difficulties in perceiving

others' emotions, perceiving and expressing their own emotions and reduced empathy and emotional interpersonal skills.

Self-Control

The domains of Impaired Limits and Other Directedness were not associated with Emotionality, which is unsurprising as these domains are associated with permissive or indulgent family origins, and a child experiencing conditional acceptance at the expense of suppressing own needs. Therefore, they are less about managing and regulating emotions in interpersonal contexts, but rather, can be seen as extremes in the capacity for exercising Self-Control or inhibition, supporting evidence for overregulation of affect reported by Nicolò *et al.* (2011). This is further illustrated by our finding that the TEI domain of Self-Control fully mediated the relationship between Impaired Limits and Problem-Focused Disengagement. Individuals with difficulties establishing internal limits and meeting realistic personal goals are more likely to cope using wishful thinking and problem avoidance. This relationship could possibly be explained by poorer perceived ability to tolerate stressful situations, self-regulate emotions, and being able to think before acting or, in other words, highly suggestive of deficiencies in managing impulsiveness and delaying gratification. As predicted in our study rationale, individuals with poorer distress tolerance are more likely to use avoidant or Disengagement coping styles and will have fewer opportunities to reappraise and problem solve. This prevents schema healing and may further strengthen their self-perceptions or poor ability and control to manage stress and difficult emotions.

Clinical implications

The clinical implications of this study are threefold. During the assessment phase of ST, clinicians will likely find it helpful to consider the underlying TEI of their clients. Understanding clients' perceived awareness of their own Emotionality and self-control abilities and exploring whether related emotional regulation problems might be innate or a deficit in skills, would facilitate more individualized formulation and treatment planning. Emotional difficulties are currently primarily treated via imagery in ST to address clients' unmet needs. Addressing more basic, underlying disruptions in metacognitive capacity in terms of emotional perception or expression difficulties would likely supplement this work by creating a stronger foundation from which to do more advanced emotional regulation work. Whilst a psychometrically sound, schema-specific measure of coping styles continues to be lacking, this study has also demonstrated the potential utility of the CSI in identifying clients' adaptive and maladaptive coping styles, particularly within the realm of avoidance.

Limitations

The significant findings of this study are limited by their small effect sizes, possibly due to the use of a non-clinical population, who tend to score lower on the YSQ than a clinical population. However, this study design ensures generalizability and applicability to different clinical samples. Given that EMS and maladaptive coping styles are common in the non-clinical population and that they are dimensional constructs, our findings have the prospect of being an important first step in identifying the metacognitive process underlying symptom clusters in specific disorders. Future follow-up studies with clinical

populations using clinician assessment in addition to participant self-report are necessary to replicate findings. This will further enable the integration of metacognition literature with maladaptive interpersonal schemas and coping. Furthermore, this study does not allow for conclusions to be drawn about the direction of associations between variables. Although evidence suggests associations between our constructs of interest, to tease apart the order and direction and of influence between constructs requires a longitudinal study design.

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