FEAR OF EMOTION IN ADOLESCENTS: 
THE MODIFIED AFFECTIVE CONTROL SCALE FOR ADOLESCENTS-REVISED

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This thesis is presented for the degree of Doctor of Psychology (Clinical) of Murdoch University (2010).
I declare that this thesis is my own account of my research and contains as its main content, work which has not previously been submitted for a degree at any tertiary educational institution.

Delphine Koh
ABSTRACT

Difficulties in emotion regulation, in the form of fear of emotion, have been studied in adults but have received scant attention within the adolescent population. This omission is partly due to the lack of comprehensive and cross-culturally valid emotion measures that adequately assess emotion dysregulation in adolescents. The current research looks at evaluating the psychometric properties and clinical relevance of the Modified Affective Control Scale for Adolescents-Revised (MACSA-Revised), which measures adolescents’ fear of losing control over emotions or their reactions to emotions.

Study 1 examined the psychometric properties and construct validity of the MACSA-Revised in a community sample of 595 Singaporean students, aged 12 to 18 years. Exploratory factor analysis indicated that data was best explained by a 5-factor solution and reliability and validity of the MACSA-Revised was demonstrated. Although it was noted that females reported significantly higher fear of emotion than males, and upper secondary students reported significantly higher fear of emotion than lower secondary students, these differences produced only small effect sizes.

Study 2 examined the clinical utility of the MACSA-Revised by comparing the responses of a matched sample of 40 clinical adolescent participants from a mental health clinic in Singapore and 40 community adolescent participants. Evidence of criterion-related validity of the MACSA-Revised was demonstrated. Clinical participants reported a heightened fear of emotion as compared to community participants. In addition, gender
and year-level main effects were found in the combined clinical and community sample (N = 80).

Although limitations of the two studies are noted, the MACSA-Revised appears to be a psychometrically sound measure for the assessment of fear of emotions in adolescents. Having an emotion measure with cross-cultural applicability that is suitable for adolescents will be helpful for future research when looking at pathways of emotion dysregulation that contribute to adolescent psychopathology.

Keywords: Fear of emotion, adolescents, emotion regulation, emotion dysregulation, culture and emotion
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CHAPTER 1

GENERAL OVERVIEW

The field of emotion and emotion-related phenomena has received much attention in the last few decades (e.g., Frijda, 1986; Izard, 1977, 1983; Keltner & Gross, 1999; Malatesta & Haviland, 1982; Rottenberg & Gross, 2007; Saarni, 1990) and it is now generally accepted amongst researchers and mental health practitioners that dysregulated emotion contributes to the development of psychopathology in both children and adults (e.g., Cole, Michel, & Teti, 1994; Gross, 1998a, 2002; Southam-Gerow & Kendall, 2002). This thesis sets out to address a number of issues in the study of emotion regulation that need further attention. Gaps in the literature have pointed to a lack of knowledge on emotion dysregulation in the adolescent population. In addition, it has been identified that there are few appropriate robust emotion measure instruments for adolescents that can be used cross-culturally. Therefore, the aim of this thesis to address these issues with the goal of laying the foundation for future emotion research with adolescents.

The current thesis argues that although emotion dysregulation is associated with some forms of psychopathology, pathways linking particular dimensions of emotion dysregulation to particular maladaptive clinical outcomes need to be further identified. In attempting to understand the dynamics of emotion, it is crucial to bear in mind that it is the individual’s subjective experience of emotion and how the individual proceeds to process this experience that affects the course of emotional responding, which in itself may influence possible trajectories towards psychopathology. Indeed, researchers have suggested that maladaptive outcomes are not just associated with deficiencies in the ability to modulate strong negative emotions, but also deficiencies in the capacity to experience subjectively the full
range of emotions and respond appropriately, flexibly and spontaneously (Cole et al., 1994; Gratz & Roemer, 2004; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; McManus & Waller, 1995).

In recognising that emotion dysregulation can include deficiencies in processing and experiencing emotions, this thesis is set against the backdrop of the development of the fear of anxiety concept (Goldstein & Chambless, 1978; Reiss & McNally, 1985; Taylor, 1995). The study of the fear of anxiety concept is one area of research that clearly underlines the need to understand how one’s subjective experience of emotion and subsequent reaction and processing of the experience can affect the course of a clinical disorder.

For example, researchers have proposed that panic disorder is maintained by the fear of the loss of control over one’s affective and behavioural responses when experiencing fear-related sensations (Clark, 1986; Craske & Barlow, 2008; Goldstein & Chambless, 1978; Reiss 1987; Reiss & McNally, 1985). The experience of an initial panic attack is associated with aversive emotional, cognitive and behavioural experiences such as extreme anxiety, embarrassment and thoughts of physical harm befalling oneself. Thus, excessive anxiety and hypervigilance over bodily sensations associated with panic attacks come to develop after initial panic attacks as these fear-related bodily sensations (e.g. increase in heart rate) become paired with aversive outcomes. Individuals become conditioned to fear the fear-related bodily sensations, which leads to the development of a panic attack, and subsequently maintains the clinical presentations of panic disorder.

This line of research has been further extended to the study of the fear of other strong emotions that may contribute to psychopathology in adults (Barlow, 1991; Taylor & Rachman, 1991; Williams, Chambless, & Ahrens, 1997). Fear of emotion
has been linked with aggression (Jakupcak, 2003; Jakupcak, Tull, & Roemer, 2005), borderline personality disorders (Sauer & Baer, 2009; Yen, Zlotnick, & Costello, 2002), generalised anxiety disorder (Mennin, Heimberg, Turk, & Fresco, 2002; Olatunji, Moretz, & Zlomke, 2010), separation anxiety disorder (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005) and post-traumatic stress disorder (Forbes et al., 2008; Price, Monson, Callahan, & Rodriguez, 2006). Thus far, research has illustrated the importance of the need to further study the fear of emotion concept and how it may contribute to clinical symptomatology associated with various disorders.

However, most of our understanding of how emotional processing and reactivity to one’s emotional experience may contribute to the development and maintenance of clinical disorders is based on research with adults (e.g. Craske & Barlow, 2008; Forbes et al., 2008; Goldstein & Chambless, 1978; Williams et al., 1997). Little is known about the fear of emotion in adolescents. Given that the period of adolescence is a significant transitional period of change biologically, cognitively and socially, the emotional processes an adolescent goes through may be different from those of adults. The results from studies using adult samples cannot be merely generalised to adolescents, as adult models may not apply to other developmental stages.

Furthermore, our understanding of the emotional processing and reactivity of adolescents is hampered by a lack of appropriate assessment tools to measure the experience of emotion in adolescents. Although it is acknowledged that there has been recent interest in developing instruments measuring adolescents’ awareness of emotions and emotion regulation strategies used by adolescents, such as the Regulation of Emotions Questionnaire (Phillips & Power, 2007) and the Emotion Awareness Questionnaire (Rieffé, Oosterveld, Miers, Meerum Terwogt, & Ly, 2008),
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it remains the case that there are very few published robust measures that focus on emotional processing and reactivity in adolescents.

Therefore, the overarching objective of the current thesis is to address the void of psychometrically sound emotion processing measures for adolescents that have the ability to discriminate between clinical and non-clinical adolescent samples and are applicable cross-culturally. It is known that emotions arise from person-environment interactions and cannot be understood without examining both the individual and the social context in which emotion arises (Campos, Mumme, Kermoian, & Campos, 1994; Cole, Martin, & Dennis, 2004; Zeman, Klimes-Dougan, Cassano, & Adrian, 2007). Psychological constructs and empirically based psychotherapy have generally been developed with a Western population in mind and the influence of culture is at times neglected in literature on the development of emotion regulation (Southam-Gerow & Kendall, 2002). Thus, it is questioned if the fear of emotion construct may be applicable to adolescents from a non-Western culture. Ensuring that there is an appropriate fear of emotion measure that remains robust in non-Western adolescent populations will allow for further in-depth study into emotion regulation and dysregulation in adolescents across cultures.

To achieve this objective, this thesis focuses on the validation of a self-report instrument, the Modified Affective Control Scale for Adolescents-Revised (MACSA-Revised; Geddes & Dziurawiec, 2008). The 18-item MACSA-Revised is an abbreviated version of the Modified Affective Control Scale for Adolescents (MACSA; Geddes & Dziurawiec, 2007), a measure of fear of emotion in adolescents, which was modified and adapted from the Affective Control Scale (ACS; Williams et al., 1997) to suit an adolescent population.
The current thesis includes two studies that explore the applicability of the MACSA-Revised in adolescents across different cultures with the goal of addressing the aforementioned issues. The first study examines the psychometric properties, factor structure and validity of the MACSA-Revised using responses from a Singaporean adolescent population. Furthermore, in the interest of having a better understanding of the use of the MACSA-Revised amongst Singaporean adolescents, analyses of demographic differences, in terms of gender and academic year-levels, in the responses on the MACSA-Revised will be undertaken. The second study in this thesis examines the clinical utility of the MACSA-Revised. Specifically, analyses will be conducted to determine if the MACSA-Revised remains psychometrically sound when used in a clinical adolescent sample and if its identified factors distinguish between responses of a matched sample of adolescents attending a mental health clinic in Singapore and those of adolescents in the Singapore community. Attention will also be given to demographic differences amongst the community and clinical samples in the second study. It is hoped that results from these two studies will form a basis for future research looking at pathways of emotion dysregulation that lead to psychopathology in adolescents.

In sum, this thesis begins with a review that summarises the current understanding of the relation between emotion and psychopathology, the need to focus on the period of adolescence and cross-cultural factors that should be considered in emotion research. The review then addresses the lack of psychometrically sound emotion measures available for use with adolescents. Details of the two studies looking to validate the MACSA-Revised are next described, with strengths and limitations of the studies noted. The thesis finally concludes with a look at integrating the findings of both studies and a discussion on the clinical utility of the
instrument as well as possible future directions that research in emotion regulation in adolescents can explore.
CHAPTER 2
LITERATURE REVIEW:
EMOTION AND PSYCHOPATHOLOGY

Definition of Emotion

Emotions are a daily occurrence and our emotional experiences significantly affect our quality of life. Thus, it comes as no surprise that researchers and clinicians have given serious consideration to the role of emotion in the development of psychopathology (e.g., Cole et al., 2004; Cole et al., 1994; Flannery, Torquati, & Lindemeier, 1994; Gross, 1998a, 2002; Kring & Werner, 2004; Southam-Gerow & Kendall, 2002). However, before reviewing the relevant literature on emotion and assessment of emotion, it is important to consider definitions and conceptualisations of emotion and emotion regulation.

Researchers like Cole and her colleagues (2004), along with other scholars of emotion (e.g., Flannery et al., 1994; Gross, 2002), have indicated their concern that the many different definitions of emotion used by different researchers have led to an ambiguity in the understanding of related emotional concepts. This lack of definitional consistency has contributed to researchers employing widely varied methods of studying emotion, which makes it difficult to integrate findings when looking at the field of emotion (Cole et al., 2004; Flannery et al., 1994). Consequently, Cole et al. recommended that researchers clearly articulate their working definitions of emotional constructs so as to improve clarity and scientific rigour in the study of emotion. Given the multidimensional nature of the emotional process, this recommendation is acknowledged to be necessary before one can further examine particular pathways that may lead to psychopathology.
In the current discussion of emotions, the definition of emotion by Cole et al. (2004) is used: “emotions are appraisal-action readiness stances, a fluid and complex progression of orienting toward the ongoing stream of experience” (p. 320). This definition implies that emotions are dynamic biological responses that are influenced by the individual’s relations to the surrounding context and environment. This definition is also congruent with a holistic approach to understanding emotions, as suggested by Solomon (2002), who believed that every emotion has five aspects to it. These five aspects include (i) behavioural expressions such as plans for action and verbal behaviour, (ii) physiological responses which include hormonal, neurological and neuro-muscular activations, (iii) phenomenological responses such as sensations, (iv) cognitive responses such as cognitive appraisals, perceptions and reflections about one’s emotions, and lastly, (v) the social context in which the emotion occurs (Solomon, 2002). This holistic understanding of emotions allows one to view the emotion system as a fluid and dynamic process, where it is implicitly understood that activation of an emotion occurs in a web of conscious and unconscious antecedents and responses.

Functions of Emotions

It is generally agreed that emotions are biologically endowed capabilities that have evolved and endured in humans because of their value towards survival (Cole et al., 2004; Keltner & Gross, 1999). Emotions have the adaptive functions of providing information about specific social events or conditions that may present as a significant opportunity or threat, informing one about others’ behavioural intentions, facilitating decision making, preparing the individual for rapid action and signalling information to script social behaviour (Campos, Campos, & Barrett, 1989; Gross, 1998a).
Although the valence of an emotion is often questioned, it should be emphasised that emotions in themselves are not inherently good or bad (Izard & Ackerman, 1998). Individuals regulate both negative and positive emotions (Gross & Thompson, 2007) and indeed, studies have shown that positive emotionality has also been linked to negative outcomes (Eisenberg et al., 1996; Overton, Selway, Strongman, & Houston, 2005). The adaptive function, rather than the valence, of emotion, is emphasised here.

Emotions enable the individual to appraise and respond promptly and adequately to changes in the environment that might affect one’s well-being (Stegge & Meerum Terwogt, 2007). Thus, an emotion is deemed to have an adaptive function when it occurs appropriately to the context and situation; and it is deemed to be maladaptive when it occurs in inappropriate contexts and situations (Izard & Ackerman, 1998). For example, an emotion with a negative valence, such as fear, can be adaptive in a life-threatening situation if it activates the central nervous system to prepare the body for fight or flight. At the same time, fear can be maladaptive if it is frequently triggered in social situations, giving rise to social phobia. Similarly, an emotion with a positive valence, such as happiness, is adaptive when the individual expresses it with a corresponding smile to communicate one’s joy of receiving a gift. However, happiness is maladaptive if the individual feels happy and laughs when misfortune befalls another individual. Therefore, it can be said that dysfunction occurs if over long periods of time, an emotion is triggered inappropriately and serves no adaptive function.

Emotion As a Dynamic Process

In studying emotion, it is essential to reiterate that the emotion system is a dynamic and fluid process. Various processes and systems can activate the emotion
system and emotion activation is not a unitary linear concept (Izard & Ackerman, 1998). Rather, the emotion-activating system is influenced often, in turn, by the activated emotion as well. Emotion activation processes are dynamic and involve feedback and feed-forward loops (Izard & Ackerman, 1998, Stegge & Meerum Terwogt, 2007). Cognitive processes (such as appraisal, attribution, judgement, memory), affective states (such as pain or physical distress) and neural processes (such as the release of endorphins during exercise) can activate and influence emotional reactions (Izard & Ackerman, 1998; Thompson & Goodvin, 2005). Emotions activated can influence, in turn, each of these processes individually or concurrently, giving rise to the experience of emotion, emotion expression, emotion regulation or other multiple, more complex emotions. Furthermore, emotions may be prevented from being activated in the first place (such as avoidance of social situations for the socially phobic to avoid feelings of anxiety) which can similarly give rise to affective, physiological and cognitive responses. It is the view of this thesis that emotion regulation appears to be embedded in all phases of the emotion activation process (Campos, Frankel, & Camras, 2004) and should not be viewed as a separate process from emotion activation alone. Thus, given the dynamic nature of emotions, it is crucial to bear in mind that it is the individual’s subjective experience of emotion and how the individual proceeds to process this experience that affects the course of emotional responding and expression.

Definition of Emotion Regulation

A concept which is frequently mentioned in the study of emotions and psychopathology is emotion regulation. When discussing emotion regulation, it is essential to bear in mind that the term emotion regulation denotes two aspects of regulation (Cole et al., 2004; Cole et al., 1994; Gross & Thompson, 2007). On the
one hand, emotion regulation could refer to emotions having a regulatory function, with the activated emotion creating changes in thoughts, physiology or behaviour which, in turn, changes the valence, intensity or duration of the activated emotion. On the other hand, emotion regulation could also refer to the ways in which the activated emotion is regulated to allow the individual to monitor, delay or adjust their responses and adapt to the complexity of the situational demands.

With these two aspects of emotion regulation in mind, this thesis employs the definition of emotion regulation offered by Cole and her colleagues, that emotion regulation is “the ability to respond to the ongoing demands of experience with the range of emotions in a manner that is socially tolerable and sufficiently flexible to permit spontaneous reactions as well as the ability to delay spontaneous reactions as needed” (Cole et al., 1994, p. 76). It should be highlighted that according to this definition, adaptive regulation involves flexibility in the use of emotion regulation strategies to modulate reactions rather than to merely eliminate or reduce the activated emotion.

Other researchers too have viewed emotion regulation from a multicomponent perspective that does not merely include diminishing negative emotions. For example, Gratz and Roemer (2004) conceptualised emotion regulation as involving the awareness, understanding and acceptance of emotions as well as the ability to use situationally appropriate emotion strategies flexibly to modulate emotional responses and control impulsive behaviours to achieve desired individual goals and to meet situational demands. In addition, emotion regulation may be adaptive or maladaptive, conscious or unconscious and may involve increasing or decreasing regulation of various aspects of negative or positive emotions (Gross & Thompson, 2007). Thus,
as with understanding emotion, emotion regulation is a dynamic ongoing process that is multidimensional in nature and can occur at any stage of the emotional process.

Goals of emotion regulation differ amongst individuals and are influenced by factors such as past experience, culture, social expectations and the environment (Campos et al., 1994; Fisher, Manstead, Evers, Timmers, & Valk, 2004). Motives for emotion regulation, be it in a regulatory or regulated manner, can include wanting to engage in impression management to avoid being evaluated negatively, having prosocial motives of not wanting to hurt and offend others and wanting to influence the behaviour of others (Fisher et al., 2004). In sum, individual differences in emotion regulation lead to differential outcomes.

Development of Emotion Regulation

Developmental psychologists have paid considerable attention to emotion regulation and the capacity to regulate emotions and related behaviours is considered a major developmental task (Cicchetti, Ganiban, & Barnett, 1991; Kopp, 1989; Stegge & Meerum Terwogt, 2007). Development of emotion regulation starts from a very early age and research on infant temperament has shown that emotions are regulated from infancy (as reviewed in Cole et al., 2004). Furthermore, the nature of the parent-child attachment relationship has been linked empirically to emotion regulation development and demonstrates that emotions are both regulated and regulating in social interactions from a young age (see Cole et al., 2004; Southam-Gerow & Kendall, 2002, for reviews).

Both intrinsic factors, such as temperament and cognitive processes, as well as extrinsic factors, such as the caregiving environment and cultural expectations, contribute to the development of emotion regulation capabilities from infancy (Fox & Calkins, 2003). Infants and children initially rely on those in their social environment...
(e.g., parents and caregivers) to regulate their emotions. Alongside the cognitive and neurological development that comes with age, children progressively internalize these abilities to become more proficient at regulating their own emotions (Diamond & Aspinwall, 2003; Fox & Calkins, 2003; Kopp, 1989; Stegge & Meerum Terwogt, 2007).

As children begin to form relationships with peers, the capacity for self-regulation constrains their success at social relationships and failure to acquire skills to manage emotional arousal and responses may lead to difficulties in social interactions (Bell & Calkins, 2000). Furthermore, Eisenberg, Fabes, and Losoya (1997) have argued that if emotional children do not learn to recognise and regulate the experience and expression of emotion, they are at risk for a variety of internalising and externalising, as well as academic problems. Emotion regulation capabilities and strategies internalised from childhood carry over into adulthood, where the use of different emotion regulation strategies have been found to be associated with different outcomes in the areas of social relations, emotional health and general well-being (Fabes & Eisenberg, 1997; Gross & John, 2003).

Components of Emotion Regulation

As suggested by the definition of emotional regulation provided by Cole et al. (1994), one’s emotional awareness and emotional reactivity constitute one’s emotional experience, which in turn is but one dimension of emotion regulation. Emotional experience reflects the subjective perception or evaluation of response tendencies, which may subsequently be labelled affectively positive or negative by the individual (Flannery et al., 1994). Activation of the emotion system along with its corresponding action and response tendencies results in the experience of an emotion (Stegge & Meerum Tergowt, 2007). It is not only the awareness of the
phenomenological aspect of an emotion, but also the thoughts about the experience and/or the awareness of the experience as a specifically labelled emotion that constitutes emotional awareness and experience (Lambie & Marcel, 2002; Stegge & Meerum Terwogt, 2007). In adult literature, researchers focusing on emotional experience typically use self-reports as tools to assess an individual’s experience of emotion (Flannery et al., 1994; Izard & Ackerman, 1998) but such instruments for use amongst adolescents remain scarce.

Another component of emotion regulation is emotional expression. Observable behaviours such as smiling and frowning that reflect emotional responses in the immediate situation are what constitute emotional expression (Flannery et al., 1994). Emotional expression has been studied extensively, especially from a developmental perspective. Emotion expression as a form of communication starts in early infancy and continues throughout the life span (Izard & Ackerman, 1998; Southam-Gerow & Kendall, 2002). Infants learn to express emotions through social referencing (e.g., looking to mother for appraisal of an object) and shared reference (e.g., looking at where mother is looking; Southam-Gerow & Kendall, 2002). Not only is expression of emotion functional in social communication and social relationships, it also serves a regulatory purpose by signalling to others one’s emotional state (Izard & Ackerman, 1998).

Regulation of emotional expression starts even in infancy as a learnt response (Cole et al., 1994; Malatesta & Haviland, 1982). For example, as reviewed in Cole et al. (1994), insecurely attached-avoidant infants may over-regulate their emotional expressions and fail to show distress when caregivers leave as the infant has learnt to avoid the rebuff from the caregiver. In addition, Stegge and Meerum Terwogt (2007) also noted possible parental influences in their review, that children from a young age
appear to learn that authentic emotional expressions are not always appreciated and they are able to control the outward expression of emotions, even without conscious evaluation of the situation.

With the development of theory-of-mind reasoning, children learn to use emotional expressions of others to make inferences about accompanying inner processes and also come to understand the often unspoken display rules that motivate concealing one’s emotions (Stegge & Meerum Terwogt, 2007). Choices to control one’s expression of emotion become increasingly linked to the management of interpersonal relationships whereby emotion expression is regulated to avoid negative outcomes, protect one’s self-esteem, defend relationships and behave in accordance with social norms and rules (Saarni, 1999). In addition, as the child matures, the skill of emotion regulation through regulating one’s emotional expression evolves and increases in sophistication from merely reducing the amount of expressed emotion, to the more challenging replacement of a preferred, automated expression for a less desired one (Ekman & Friesen, 1975).

Emotion Regulation Strategies

Strategies to manage one’s emotions are frequently mentioned in the study of emotion regulation. Although it has been said that it is unlikely that any one form of emotion regulation strategy is always good or always bad (Gross, 1998a), it appears that dysfunctional outcomes are more often linked to frequent use of particular forms of regulation strategies in community samples (e.g., Gross, 1998b; John & Gross, 2004). For example, John and Gross (2004) found that individuals who used the strategy of cognitive reappraisal, as compared to those who used suppression, experienced and expressed greater positive emotion and less negative emotion. They also found that using reappraisal, rather than suppression, was associated with better
interpersonal functioning and positive well-being (John & Gross, 2004). Similarly, in looking at emotion regulation strategies and anxiety arousal, Hofmann, Heering, Sawyer and Asnaani (2009) found that the strategies of reappraisal and acceptance of anxiety were more effective in moderating physiological arousal than using suppression, while reappraisal was found to be more effective in moderating the subjective feelings of anxiety, as compared to suppression or acceptance.

Corresponding findings of particular forms of emotion regulation strategies being associated with more dysfunctional outcomes have been found in adult clinical samples. Levitt, Brown, Orsillo, and Barlow (2004) looked at patients with panic disorder who were given instructions to either engage in the emotion regulation strategy of acceptance or of suppression, alongside a control group who were given a neutral narrative, during a carbon dioxide challenge, whereby participants were administered 5.5% carbon dioxide enriched air for 15 minutes via an air pressure mask attached to the participant’s face. The effects of this carbon dioxide challenge are gradual and produce significant panic-like physical sensations. The authors found that participants in the acceptance group were significantly less anxious and less avoidant as compared to the suppression or control groups with regards to subjective anxiety and willingness to participate in a second carbon dioxide challenge, although they did not differ from the other two groups in terms of self-reported panic symptoms or physiological measures (Levitt et al., 2004). No differences were found between the suppression and control group on any measure (Levitt et al., 2004). Suppression, therefore, appears to be one emotion regulation strategy that has not been found to be useful in both normative and clinical adult samples.

Aldao, Nolen-Hoeksema, and Schweizer (2010) recently conducted a meta-analytic review of emotion regulation strategies used across psychopathology. The
majority of the studies reviewed by Aldao et al. used adult participants and only about 10% of the studies looked at emotion regulation strategies used by children and adolescents. The authors found that five emotion regulation strategies were positively associated with psychopathology across the various disorder clusters – avoidance, rumination, suppression, problem solving and reappraisal. Particular emotion regulation strategies were found to be elevated in certain disorders. Avoidance was found to be positively associated with anxiety, depression and eating disorders, rumination was found to be positively associated with anxiety, depression, eating and substance abuse disorders, while suppression was found to be positively associated with anxiety, depression and eating disorders. Conversely, problem solving was negatively associated with anxiety, depression and eating disorders. Reappraisal was negatively associated with depression, and marginally negatively associated with anxiety. Acceptance, although not significantly associated with psychopathology as a whole, was found to be significantly negatively associated with anxiety and depression. The authors concluded that some emotion regulation strategies were more strongly related to overall psychopathology than others. In particular, strategies considered maladaptive (i.e., rumination, suppression and avoidance) were more strongly related to psychopathology than the adaptive strategies (i.e., problem solving, acceptance and reappraisal).

Taken together, these studies indicate that emotion regulation strategies that do not promote emotion processing, such as suppression and avoidance, are associated with dysfunctional outcomes for both community and clinical samples. Therefore, although no strategy is in itself good or bad, it appears that difficulties in emotion regulation arise when a strategy frequently used leads to maladaptive results. However, it must be emphasised that these findings reflect results from studies
conducted mainly with adult populations in the West. Moreover, it has been noted that few studies have looked specifically at the relation between emotion regulation strategies and adjustment in adolescent populations (Silk, Steinberg, & Morris, 2003). This under-representation of research looking at emotion regulation strategies amongst children and adolescents is best exemplified by the meta-analytic review by Aldao et al. (2010) noted previously, whereby majority of the studies reviewed used adult samples. Thus, the conclusions from the existing reviews of emotion regulation strategies across psychopathology cannot be extrapolated to adolescent populations or even adult populations in non-Western populations.

**Emotion Dysregulation and Psychopathology**

Difficulties with emotion regulation, otherwise known as emotion dysregulation, indicate that the patterns of regulatory process are jeopardising or impairing productive or appropriate functioning (Cole et al., 1994). These difficulties include interference in the processing of information and events, inability to flexibly integrate emotion with other processes and poor control over affective experience and expression (Cole et al., 1994). Thus, emotion dysregulation does not necessarily mean unregulated or a lack of regulation, but instead regulation patterns that are operating inflexibly or dysfunctionally. Temporary emotion dysregulation can cause intense discomfort, symptoms of anxiety, poorly controlled behaviour and/or withdrawal, while prolonged dysregulation may eventually be manifested in various disorders (Macklem, 2008).

Indeed, emotion regulation difficulty is one aspect of the emotion process that has been frequently associated with psychopathology in both adults and youths alike (Cole et al., 1994; Gross & John, 2003; Macklem, 2008; Southam-Gerow & Kendall, 2002). It has been suggested that dysfunctional emotion regulation is implicated in
over half of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*, American Psychiatric Association, 1994) Axis I disorders and in all of the Axis II disorders (Gross, 1998a; Gross & Levenson, 1997). Efforts to avoid intensive and aversive cognitive and emotional states result in dysfunctional emotion regulation, leading to the behavioural problems associated with clinical disorders (e.g., Cole et al., 1994; McManus & Waller, 1995). Indeed, as will be reviewed more thoroughly in the following paragraphs, research has shown that emotion dysregulation is related to a variety of clinical disorders amongst adults and youths, including mood disorders (Silk et al., 2003), anxiety disorders (Carthy, Horesh, Apter, & Gross, 2010; Southam-Gerow & Kendall, 2000; Suveg & Zeman, 2004), conduct disorder (Mullin & Hinshaw, 2007), eating disorders (McManus & Waller, 1995; Sim & Zeman, 2006), and borderline personality disorder (Glenn & Klonsky, 2009; Linehan, 1993a; Yen et al., 2002).

The contribution of emotional dysregulation to a clinical disorder is perhaps best highlighted by borderline personality disorder (BPD). BPD is characterised by intense negative emotions, identity confusion, impulsive behaviours and instability in interpersonal relationships and many of the criteria in the DSM-IV reflect abnormalities in emotional functioning. Linehan’s (1993a) biosocial theory proposed that BPD is a disorder that is predominantly due to a dysfunction of the emotion regulation system and many of the associated behaviours of the disorder, including deliberate self-harm, serve to regulate the intense emotions that the individual with BPD experiences. Indeed, recent studies have supported the view that emotional dysregulation drives the symptoms of BPD to a greater extent than merely levels of negative emotionality (Glenn & Klonsky, 2009; Yen et al., 2002).
Emotion dysregulation is also implicated in eating disorders. In their study of the role of emotion regulation in the development of eating disorders in early adolescent girls, Sim and Zeman (2006) found that poor emotional awareness predicted eating disorder symptoms. Interestingly, Overton et al. (2005) also found evidence that women diagnosed with eating disorders reported experiencing both pleasant and unpleasant emotions more frequently than controls, which the authors suggested indicated that disordered eating behaviour was a strategy used to regulate both positive and negative emotional states.

The relationship between emotion regulation and anxiety disorders has been looked at by a number of researchers. For example, Turk et al. (2005) looked at differences in emotion regulation in individuals with generalised anxiety disorder, social anxiety disorder and controls. It was found that those with anxiety disorders experienced greater negative intensity of emotions as compared to controls and demonstrated less ability to repair negative mood states as compared to controls.

Similarly, emotion dysregulation has also been evidenced in children with anxiety disorders (Carthy et al., 2010; Southam-Gerow & Kendall, 2000; Suveg & Zeman, 2004). In their study with participants aged between 10 and 17,Carthy et al. (2010) found that relative to controls, anxious youths demonstrated greater deficits in using emotional regulation strategies of reappraisal and problem solving but showed a greater reliance on strategies such as avoidance and seeking help of others. The anxious youths also showed a higher frequency, compared to non-anxious children, of failure to apply any regulation strategy in negative emotion situations. The authors suggested that these findings may reflect a lower actual or perceived ability to engage in self-directed change of the negative emotional stimuli, which may further decrease
regulation self-efficacy, and this in turn leads to an increased risk of functional impairment and experiencing intense negative emotion.

In another study looking at children aged 8 to 12 years with and without anxiety disorders, Suveg and Zeman (2004) found that compared to children without an anxiety disorder, children who met criteria for an anxiety disorder indicated more dysregulated emotional expression, had more difficulties in coping with emotions and perceived themselves as having little confidence in their ability to regulate emotional arousal. In addition, it was found that children with an anxiety disorder experienced worry and anger more intensely than children without anxiety disorders. Furthermore, mothers of children with an anxiety disorder perceived their children as significantly more negative and labile than did mothers of the children without an anxiety disorder.

Emotion dysregulation has also been implicated in other disorders of childhood and adolescence (Macklem, 2008; Southern-Gerow & Kendall, 2002). Studies looking at children and adolescents have also found links between emotion regulation difficulties and both internalizing and externalizing disorders (e.g., Casey, 1996; Mullin & Hinshaw, 2007; Nock, Wedig, Holmberg, & Hooley, 2008).

The wealth of research on the effect of emotion regulation on psychopathology in adults and youth alike suggests that increased focus on emotion in therapy may be beneficial. The ability to monitor and react flexibly to one’s emotional state and to learn adaptive emotion regulation skills is an important consideration when implementing treatment programs for individuals across ages. For example, in evaluating their exposure-based treatment for adults with posttraumatic stress disorder, Cloitre, Koenan, Cohen, and Han (2002) found that improvement in emotion regulation abilities before exposure work predicted the
success of treatment. Similar recommendations suggesting that treatment should include a component focusing on emotions and emotion regulation have been made with regards to psychotherapy for young people (e.g., Carthy et al., 2010; Southam-Gerow & Kendall, 2002).

Summary

In summary, a clear conceptualisation of emotion and emotion regulation is necessary in any discussion of emotion-related phenomena. The multidimensional nature of the emotion process is emphasised and it is highlighted that emotion regulation is embedded in all aspects of this process. Furthermore, it is the functionality of emotions and emotion regulation that is of interest here. Dysfunction occurs when an activated emotion serves no adaptive function or when repeated patterns of emotion regulation lead to maladaptive outcomes. Prolonged emotion dysregulation appears to increase the likelihood of developing psychopathology.
CHAPTER 3

LITERATURE REVIEW: FEAR OF EMOTION AS A PATHWAY TO PSYCHOPATHOLOGY

Reactivity to Emotions

Bringing to mind the definition of emotion regulation as defined by Cole et al. (1994), emotion regulation is not merely an attenuation of emotional arousal, but in fact spans a number of dimensions (e.g., Cole et al., 1994; Gratz & Roemer, 2004). Awareness, acceptance and understanding of one’s emotional experience, as well as the ability to respond flexibly and adaptively to emotions, are all components of emotion regulation (Gratz & Roemer, 2004). Thus, deficiencies in the capacity to experience a full range of emotions and respond spontaneously and appropriately to the situation may be as maladaptive as being unable to modulate and reduce negative emotions (Cole et al., 1994; Gratz & Roemer, 2004). Healthy emotion regulation includes appropriate reactivity to emotions, and efforts to avoid or control one’s emotional experience, because of fear, distress or discomfort, may potentially have a dysregulating effect leading to a clinical presentation (Cole et al., 1994; Hayes et al., 1996; McManus & Waller, 1995).

Using the multicomponent framework of emotion regulation, it is argued that the inappropriate reactivity of having a fear of emotions and being unable to accept and understand one’s emotional experiences may lead to the use of emotion regulation strategies, such as suppression and avoidance, that increase the likelihood of dysfunctional clinical outcomes. Indeed, it is noted that third-generation behavioural and cognitive therapies (Hayes, 2004), such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002) and Dialectical
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Behaviour Therapy (Linehan, 1993b), suggest that it is one’s unwillingness to remain in contact with private experiences (e.g., thoughts, feelings and bodily sensations) that leads to attempts escape, avoid or alter the experience and these attempts at modifying one’s experience may then be manifested as psychopathology.

Fear of Fear

An established area of research focusing on reactivity to emotion is the fear of anxiety concept (Goldstein & Chambless, 1978; Reiss & McNally, 1985; Taylor, 1995). Goldstein and Chambless (1978) found that teaching merely emotion regulation strategies (e.g., relaxation techniques) to counter anxiety symptoms during panic attacks was not enough for treatment of panic disorder. They thus proposed that it is the “fear of fear” or the fearful reactions to one’s experience of fear-related sensations that maintains panic disorder with agoraphobia. Fear of fear is thought to develop through classical conditioning processes whereby fear-related sensations (e.g., increase in heart rate) are paired with aversive events (e.g., a panic attack). Thus, individuals come to fear the loss of control or expect physical harm when experiencing fear-related sensations whenever they are highly anxious (Goldstein & Chambless, 1978).

Other researchers have also supported the hypothesis that excessive anxiety over panic-related bodily sensations maintains panic disorder (Barlow, 1988; Clark, 1986; Reiss, 1991; Smits, Powers, Cho, & Telch, 2004). Current accepted psychological treatments for panic disorder usually include a component that targets the fear of anxiety sensations (e.g., Barlow & Craske, 2000).

A similar and related construct is the anxiety sensitivity construct (Reiss, 1987; Reiss & McNally, 1985). Anxiety sensitivity is proposed to be a personality variable of having a predisposed fear of anxiety-related sensations, which arises from
the belief that anxiety and its associated symptoms may cause undesired physical, social and psychological consequences that extend beyond any immediate unpleasantness during an episode of anxiety or panic (Reiss, 1987; Reiss & McNally, 1985). This anxiety sensitivity may lead individuals to misinterpret fear-related sensations, which in turn leads to the development of panic and of fear of anxiety. Anxiety sensitivity has been linked not only to panic (e.g., Taylor, 1995) but also to a variety of other clinical disorders (Taylor, Koch, McNally, & Crockett, 1992; Taylor, Koch, & McNally, 1992).

Fear of Emotion

Following this line of research, it is been suggested that a fear of emotions, including emotions like anxiety, depression, anger, sadness and even positive emotions like excitement can lead to distressing outcomes for individuals (Barlow, 1991; Rapee, Craske, Brown, & Barlow, 1996; Taylor & Rachman, 1991; Williams et al., 1997). For example, Barlow (1991) proposed in his model of emotional disorders that emotions, such as anxiety, sadness, anger and excitement, which are activated inappropriately or unexpectedly may cause biologically and psychologically vulnerable individuals to perceive a loss of control of bodily sensations. He argued that the sense of the lack of control of negative events related to emotional and bodily reactions may be the crucial element to anxiety or dysthymia, as these vulnerable individuals experience the emotions as uncontrollable and threatening and perceive themselves to be unable to cope with the possible reoccurrence of these emotions and their resulting consequences (Barlow, 1991).

Unlike Barlow (1991), other researchers have indicated that a fear of emotion may develop even in less vulnerable individuals. It has been suggested that fear of other emotions may occur through similar conditioning or cognitive processes that
have led to the development of the fear of fear (Taylor & Rachman, 1991; Williams et al., 1997).

Employing the conditioning model that was used to explain the “fear of fear” construct, Taylor and Rachman (1991) proposed the fear of sadness construct and suggested that a fear of sadness may develop if the experience of sadness has been paired with an aversive internal event (e.g., embarrassment). They found that fear of sadness was prevalent in an undergraduate sample and was related to the intensity of the sadness response (Taylor & Rachman, 1991). In their follow up study, they established that fear of anxiety and fear of sadness were distinct constructs, and participants in that study reported engaging in avoidance behaviours to avoid experiencing the aversive affective state of sadness (Taylor & Rachman, 1992).

Developing on research conducted since the work of Goldstein and Chambless (1978), Williams and her colleagues (1997) further expanded on the fear of fear construct and proposed the fear of emotion hypothesis. Williams et al. suggested that individuals who are afraid of anxiety are also prone to fear other strong emotions. They theorised that individuals may fear strong emotions because they fear they will lose control over their emotions or their behavioural reactions to emotions.

It is thus concluded that these different lines of research converge to indicate that having a fear of emotion occurs when there is a perceived lack of control of thoughts, feelings and behaviours when experiencing activation of emotion arousal.

Measuring Fear of Emotion

To further advance their understanding of the fear of emotion construct, Williams and her colleagues (1997) developed the Affective Control Scale (ACS) to measure the fear of emotion which they defined as the fear of losing control over one’s emotions and one’s reactions to emotions. The scale was constructed as a self-
report measure for use with adults and had 42 items rated on a 7-point Likert scale. The ACS comprised four subscales: Fear of Anger, Fear of Depression, Fear of Anxiety and Fear of Positive Emotion. The total Fear of Emotion score is the average of all items. Validation of this measure was conducted on a university undergraduate sample. The measure demonstrated good reliability and predictive validity. Internal consistency was reported to be excellent for the total overall scale (\(\alpha = .94\)) and was adequate to good for the four subscales (Fear of Anger \(\alpha = .72\), Fear of Depression \(\alpha = .91\), Fear of Anxiety \(\alpha = .89\), Fear of Positive Emotion \(\alpha = .84\)). Test-retest reliability at two weeks was at an acceptable level for the total score (\(r = .78\)) as was the case for the subscale scores (Fear of Anger \(r = .73\), Fear of Depression \(r = .76\), Fear of Anxiety \(r = .77\), Fear of Positive Emotion \(r = .66\)). In addition, divergent and convergent validity were demonstrated. Analyses revealed that a fear of anxiety proved to be strongly related to the fear of depressed mood, fear of strong positive emotions, and fear of anger. Participants who had a fear of emotion were more frightened by laboratory-induced bodily sensations than were participants who were less concerned about emotional control. Furthermore, it was found that fear of anger, depression and positive emotion explained unique variance in fear of bodily sensations above and beyond that accounted for by fear of anxiety. Thus, the results of Williams et al. demonstrated that fear of emotion is indeed inclusive of emotions other than anxiety.

A follow up study by Berg, Shapiro, Chambless, and Ahrens (1998) found further evidence of internal consistency and construct validity of the ACS. They also demonstrated the incremental validity of the ACS, that the ACS predicted fear of bodily sensations even when controlling for state and trait anxiety.

Other than the ACS, only a few measures have been developed targeting the
fear of losing control over one’s emotions. These other measures were all developed using adult populations. Reiss, Peterson, Gursky, and McNally (1986) developed the Anxiety Sensitivity Index which was a self-report measure assessing the fear of a variety of anxiety symptoms as well as one’s perceived importance of emotional control and concerns about the public display of anxiety symptoms. Taylor and Rachman (1991) constructed a 12-item questionnaire focusing on the fear of sadness while Rapee et al. (1996) developed the Anxiety Control Questionnaire which was designed to measure perceived control of emotional reactions related to anxiety and perceived control over external threats.

The ACS is currently the only instrument that measures the fear of various emotions, including positive emotions. Given that the concept of fear of emotion focuses on reactivity to emotions and is concerned with the capacity to manage strong emotion, having an instrument such as this enables a better understanding of how maladaptive emotion regulation can contribute to psychopathology. Emotion dysregulation occurs when fear of emotion results in detrimental outcomes. Such outcomes are even more likely if fear of emotion leads to use of emotion regulation strategies of avoidance or suppression which, as previously reviewed, have been found to be more highly correlated with maladaptive outcomes.

Fear of Emotion and Psychological Outcomes

Indeed, since the development of the ACS, a growing body of research has evidenced the association between fear of emotion and psychological symptoms in adults (e.g., Price et al., 2006; Roemer, Salters, Raffa, & Orsillo; 2005 Yen et al., 2002). Studies have looked at fear of emotion in both non-clinical and clinical samples. The following is a review of all available journal articles on the PsycINFO database that have looked at the fear of emotion construct as measured by the ACS. It
is noted that these articles were all published between 2002 and 2010, reflecting the relatively early stages of understanding that the field has of the fear of emotion construct.

**Studies Using Non-Clinical Samples**

The contributing role of fear of emotion to aggression has been looked at in non-clinical male samples. Jakupcak and his colleagues (Jakupcak, 2003; Jakupcak et al., 2005) posited that men may be more apt to employ hostility and aggression as an emotional-avoidance strategy in response to experiencing vulnerable emotions, such as fear or shame, which are in contradiction to internalised masculine gender norms that prohibit this aspect of emotionality. Jakupcak (2003) found that fear of emotion (as measured by the ACS) was a significant predictor of self-reported levels of relationship violence, over and above masculine gender role stress. In addition, men’s fear of emotion was found to partially mediate the relationships between masculine gender role stress and relationship violence.

Similarly, Jakupcak et al. (2005) found that fear of emotions (as measured by the ACS) was significantly and positively related to overt hostility and anger expression, but significantly and negatively related to anger control. This finding remained even after items measuring fear of anger were removed from the ACS, indicating that fear of depression, fear of anxiety and fear of positive emotions were associated with anger expression, hostility and anger control as well. Furthermore, it was found that although masculinity was significantly related to expressions of overt hostility and aggression, fear of emotions emerged as a significant predictor of overt hostility, anger expression and diminished anger control, even after accounting for masculinity factors.
The findings of these two studies together suggest that although the role of masculinity may be relevant to understanding men’s hostility and aggression, this relationship is partly accounted for by men’s fear of emotions. It is noted that these studies were conducted on undergraduate samples without examination of clinical diagnoses criteria. However, it is most likely that if such findings were found in non-clinical samples, fear of emotion would likely also be found in clinical samples of men who display greater anger dyscontrol and aggression.

In another study using a non-clinical sample of 37 female participants of mainly Caucasian ethnicity, Salters-Pedneault, Gentes, and Roemer (2007) examined the associations between fear of emotion (as measured by the ACS) and reactivity to, recovery from and interference of emotional material. This study was unique in that, besides self-report measures of subjective distress and negative emotionality, emotional reactions in the form of physiological arousal were also assessed.

Results supported the notion that fear of emotion contributed to emotional distress (Salters-Pedneault et al., 2007). General fear of emotion, as measured by the ACS total score, predicted greater increase in reported negative affect and distress as well as greater increases in the physiological measure of skin conductance level in reaction to an emotional stimulus—a brief film clip depicting a woman being raped. Fear of positive emotion, fear of depression and fear of anxiety were all significant or marginally significant predictors of increase in distress and negative affect in reaction to the emotional stimulus. In addition, fear of positive emotion was a significant predictor of increases in skin conductance. Higher total fear of emotion score, along with the higher scores on the four subscales, were all significantly associated with greater interference of emotional material. These relationships remained even after variance contributed by general negative affect was removed.
The authors did find one result contrary to their hypotheses (Salters-Pedneault et al., 2007). Fear of emotion was not significantly related to diminished recovery from the emotional material, which the authors explained may have been attributed to an unmeasured third variable. Nevertheless, total fear of emotion, fear of anxiety and fear of depression were marginally significant predictors of increases in negative affect from baseline to recovery and fear of anxiety was a marginally significant predictor of increases in distress. Although restricted range and size of the sample was a limitation of this study, these findings clearly indicate the association between fear of emotion and both the subjective emotional distress and physiological reactivity to negative emotional arousal.

The role of fear of emotion is not only relevant to “problematic” behaviours and emotions but also to positive psychological well-being. Lykins and Baer (2009) studied the effects of long-term mindfulness meditation on psychological functioning amongst well-educated participants. The authors used the commonly accepted definition of mindfulness in their paper, that is, the intentional bringing of one’s complete attention to the present moment’s experiences in an accepting and non-judgemental way (Kabat-Zinn, 2003). They found that practising meditation is associated with increased mindfulness in daily life. Mindfulness, in turn, is related to decreased rumination, decreased fear of emotion (as measured by the ACS) and increased behavioural self-regulation (Lykins & Baer, 2009). The authors further found that both decreased rumination and fear of emotion independently contributed to the partial mediation of the relationship between mindfulness and psychological well-being. The authors concluded that individuals who practice mindfulness are more likely to observe their thoughts and feelings without judgement or reaction and therefore are less likely to ruminate or to fear their emotions, leading to more adaptive
functioning. This study lends support to the notion that an increased fear of emotion affects psychological well-being in general, even in non-clinical populations.

Studies Using Clinical Samples

Increasingly, fear of emotion has been in the spotlight amongst clinical disorders. For example, it has been proposed that the propensity to experience emotions more intensely and the fear of losing control over emotions may explain the association between employing cognitive avoidance strategies in generalised anxiety disorder (Mennin et al., 2002). This suggestion has been explored in recent studies with adult populations.

Roemer et al. (2005) found in their research that not only was fear of emotion (as measured by the ACS) significantly associated with worry and generalised anxiety disorder (GAD) severity in their non-clinical sample, participants with a GAD diagnosis reported significantly higher scores on the Fear of Anxiety and Fear of Depression subscales as compared to the non-clinical sample.

In the previously mentioned study that looked at individuals with GAD and social anxiety disorder (SAD), along with a control group, Turk et al. (2005) found that the both the GAD and SAD groups scored significantly higher than controls on all four subscales of the ACS. In addition, the GAD group also scored significantly higher than the SAD group on the fear of depression subscale. Furthermore, high levels of worry were associated with higher scores on all subscales of the ACS. Thus, it appears that fear of emotion is implicated in not only GAD but also other anxiety disorders. Similarly, in a study looking at fear of emotion amongst non-clinical adults with GAD symptoms, Olatunji et al. (2010) indicated that fear of emotions (as measured by the ACS) partially mediated the relationship between cognitive
avoidance and GAD symptoms and this structural relationship was found to be similar across genders.

Fear of emotion has also been examined in the posttraumatic stress disorder (PTSD) literature. Price et al. (2006) studied the role of emotional functioning in military-related PTSD and its treatment. The authors believed that the fear of losing affective control was an associated, but potentially unique construct of emotional processing. The authors posited that the fear of losing affective control was a cognitive construct that was different from the behavioural construct of emotion regulation, which “emphasises the ability to tolerate, modulate, and control emotional reactions” (p. 663). As the authors believed that PTSD involves a deficit in the ability to manage strong emotions, they examined the relationship of PTSD, depressive and anxiety symptoms, with fear of losing affective control and with emotion regulation. Emotion regulation was measured using a self-report questionnaire designed to measure the ability to adaptively regulate emotions, using three specific emotion regulation skills, while fear of losing affective control was measured using the ACS.

Analysis on pre-treatment data indicated that the fear of losing affective control, but not emotion regulation skills, emerged as a significant predictor of PTSD on the PTSD measure (Price et al., 2006). In addition, treatment outcome data indicated that change in fear of losing affective control was positively correlated with change in total PTSD scores. Changes in the ACS scores were also associated with decreases in depressive symptoms, although not with state anxiety, and changes in fear of losing affective control was the strongest predictor of changes in PTSD symptoms. However, it was noted that the subscale of fear of losing control of positive emotions was not significantly correlated to PTSD symptomatology.
Interestingly, this study found that the fear of losing affective control was not associated with ability to regulate emotions using the three specific emotion regulation skills measured (Price et al., 2006). Results also indicated that ability to regulate emotions was not a significant predictor of pre-treatment PTSD scores and post-treatment changes in ability to regulate emotions was not predictive of a change in PTSD symptoms, depressive symptoms or state anxiety. The authors concluded from their results that the fear of losing affective control was a separate construct from emotion regulation, defined according to their measure as deficits in skills related to emotional processing, recognition of distress as temporary and awareness of the usefulness of emotions.

Price et al. (2006) recognised that one limitation of their study could be related to the limitations of their emotion regulation measure, which had failed to capture the previously evidenced relationship between emotion regulation and PTSD. It is noted here that this measure is an unpublished measure and has not been further validated since its conception. Although the authors had posited that fear of losing affective control is a separate construct from emotion regulation and their results appeared to prove their hypothesis, it is argued here that the emotional process of fear of losing affective control remains a component of emotion regulation. Fear of emotion is, in fact, emotion dysregulation. It is suspected that, although the authors had defined emotion regulation to include the component of the ability to tolerate strong positive and negative emotions, the authors had seen this to be merely a behavioural construct, while viewing the fear of losing affective control as a cognitive construct. This view is challenged as the literature review in the area of emotion regulation has indicated that emotion regulation has affective, physiological (including behavioural) and cognitive components.
In another study looking at anger, alcohol use and fear of emotions in combat veterans with PTSD, Forbes et al. (2008) found that of the four subscales of the ACS, only the fear of anger subscale was significantly associated with anger measures at intake. It was also found that with inclusion of alcohol use and fear of anger in the analysis, anger severity failed to be significantly related to PTSD treatment outcome. In addition, results indicated that fear of anger significantly predicted treatment outcome over social support, social relationships and therapeutic alliance. The authors suggested that these findings indicated that the influence of anger on PTSD treatment outcome in combat veterans was unlikely to be primarily due to anger severity in itself. Instead, it appears that along with alcohol-related comorbidity, a large component of treatment outcome is in relation to the individual being frightened of experiencing their own anger, for fear of its implications and consequences.

Results of these PTSD studies support the notion that fear of emotion contributes to PTSD symptoms. More importantly, it appears that targeting the fear of losing affective control, especially the fear of anger, in treatment would be helpful in improving PTSD symptoms.

The fear of emotion has also been highlighted in discussions of borderline personality disorder (BPD). Indeed, Linehan’s biosocial theory (1993a) proposed that emotion dysregulation is the predominant feature of BPD, and that BPD symptoms result from a biological predisposition for emotional vulnerability (i.e., heightened affect sensitivity and reactivity) and an invalidating childhood environment.

Yen et al. (2002) examined the relationship between borderline traits and affect regulation dimensions of affect intensity and affect control in an adult sample of 39 females who were predominantly white Caucasians. The authors posited that abnormalities in affect intensity, a temperament-like construct of emotional
vulnerability, would suggest an inherent vulnerability to affect dysregulation while abnormalities in affect control, as measured by the ACS and representing a perceived lack of ability to regulate one’s affect, would suggest a lack of skill or efficacy in self-regulatory processes. Results of this study indicated that level of affect intensity and level of affect control were significantly associated with a number of BPD traits, even after controlling for level of depression. Furthermore, findings for affect control remained significant above and beyond the effect of affect intensity. The authors concluded that those with BPD features were more likely to have intense affective experiences. However, regardless of affect intensity, those who reported having a perceived lack of control of their affect were more likely to endorse BPD traits. Thus, despite limitations of a small, restricted sample and the lack of assessment of co-morbid axis 1 disorders, this study offers preliminary evidence that specific dimensions of affect dysregulation are indeed related to BPD symptomatology and that consideration of targeting abnormalities in affect intensity and affect control is necessary in the treatment of BPD.

In another recent study focusing on symptoms of BPD, Sauer and Baer (2009) examined relationships among childhood emotional vulnerability, an invalidating childhood environment, thought suppression, fear of emotion and symptoms of BPD in an undergraduate community sample. Using the ACS to measure fear of losing control over one’s emotions, it was found that fear of emotions partially mediated the relationship between childhood emotional vulnerability and thought suppression and fully mediated the relationship between an invalidating childhood environment and thought suppression. These results suggested that both childhood emotional vulnerability and an invalidating childhood environment may lead individuals to fear their emotions, making it more likely for them to use thought suppression as an
emotion regulation strategy. Results also indicated that fear of emotion may have a direct effect on BPD symptoms that is not mediated by increased thought suppression. Although this study was carried out on a community sample, the participants were identified using a BPD symptoms screening measure and the authors argued that nonclinical young adults with BPD features do present with a level of dysfunction across a number of domains of functioning that is severe enough to warrant further study. Thus, these findings lend support to the hypothesis that the biosocial precursors of BPD may lead individuals to be fearful of their emotions, which may lead to the development of BPD symptoms. Furthermore, this study highlights the importance of looking at emotional factors in one’s childhood (i.e., emotional vulnerability in childhood and invalidation of negative affect during one’s childhood) that may contribute to eventual psychopathology. This is an area that remains lacking in research. Looking at the fear of emotion in adolescents would thus be a good starting point in understanding the development of clinical disorders, particularly those involving emotion dysregulation.

Thus, it is evident that emotional dysregulation in the form of deficits in emotional processing due to the fear of emotion contribute significantly to psychopathology. This implies a central role for fear of emotion assessment which will, in turn, help inform treatment. In fact, targeting the fear of emotion in treatment is congruent with recent efforts within the CBT tradition to examine the efficacy of acceptance and mindfulness based interventions, which allows for a non-judgemental attitude towards experiencing emotions (e.g., Linehan, 1993b; Segal et al., 2002). However, it is noted that research in the area of fear of emotion has focused almost exclusively on adult populations and further research is required to explore this concept amongst children and adolescents.
Summary

The concept of emotion regulation spans a number of dimensions and is not merely an attenuation of emotional arousal. Awareness, acceptance and understanding of one’s emotional experience, as well as appropriate flexible reactivity to emotions, are all components of emotion regulation. Indeed, research focusing on reactivity to emotion has indicated that efforts to avoid or control one’s emotional experience may potentially have a dysregulating and maladaptive effect. Studies examining the fear of anxiety concept and, consequently, the fear of emotion construct have provided evidence that deficits in emotional processing due to the fear of losing control over one’s emotions and one’s reactions to emotions contribute to dysfunctional outcomes in both adult clinical and non-clinical samples. The current thesis advocates for further research to look at the fear of emotion construct amongst younger individuals, in particular, adolescents.
CHAPTER 4
LITERATURE REVIEW: ADOLESCENTS AND THEIR EMOTIONS

The Period of Adolescence

The term *adolescence* is derived from the Latin word *adolescere*, which means “to grow up”. In psychological literature, the period of adolescence is frequently referred to as the bridge between childhood and adulthood, as it is the transitional stage of physical and mental development involving biological, cognitive and socioemotional changes (e.g., Dusek, 1991; Petersen, Kennedy, & Sullivan, 1991; Santrock, 2003; Silk et al., 2003). There is no agreement on the exact ages in which the period of adolescence begins and ends, as not only is biological growth different for each individual, but adolescence also refers to social growth within a cultural framework, which varies widely across different societies and cultures. Nevertheless, researchers commonly consider adolescence to begin at approximately 10 to 13 years of age and to end between the ages of 18 and 22 years (e.g., Carr, 2006; Santrock, 2003; Spear, 2000), and it is recognised that the end of adolescence overlaps with the period of emerging adulthood that covers the late teens to mid-20s (Arnett, 2000, 2004, 2007).

The developmental period of adolescence is second only to the period of infancy in terms of both biopsychosocial growth as well as changing environmental characteristics and demands (Spear, 2000). It is thus unsurprising that psychological changes, experiences of strong emotions and changes in behaviour often accompany or are a consequence of the multitude of biological, cognitive and social changes that occur during adolescence.
Furthermore, a key aspect in adolescents’ development is the establishment of a clear sense of self-identity (Erikson, 1968; Harter, 1990). The adolescent years are characterized by Erikson’s fifth developmental stage of *identity versus identity confusion* which states that it is at this time that adolescents are faced with examining who they are, what they are all about and where they are going in life (Erikson, 1968). Identity formation occurs amidst emerging cognitive competencies together with the experience of numerous biological and social changes (Harter, 1990). During this ongoing unconscious search for self-identity, emotions are often aroused in the adolescent. With the ability for abstract thinking at this stage, adolescents engage in social comparisons and self-evaluations. At the same time, the ability to compare oneself to others ushers in new vulnerabilities (Harter, 1990) and self-evaluations bring on new depths of self-consciousness (Erikson, 1968) giving rise to emotions that were unfamiliar in childhood.

This bidirectional relationship emotions have with self-identity has been noted by other researchers as well (Haviland, Davidson, Ruetsch, Gebelt, & Lancelot, 1994; Haviland & Kahlbaugh, 1993). In their two studies examining the place of emotions in self-identity in participants aged between 15 and 25 years, Haviland et al. (1994) found that during adolescence, there was evidence of changes in the self-structural models of identity, and emotional context changed along with alterations in the self-structural models. These findings supported their hypothesis that identity is associated within a network of many different emotions and therefore changes in the emotional salience of core issues and relationships during adolescence would thus be related to modifications in self-identity. Although the authors did not consider if changes in emotions might be a product of the change in the self-structures, their
study no doubt highlights the intricate relationship between self-identity and emotionality during the period of adolescence.

A number of studies conducted by Larson and his colleagues, together with more recent studies by others, have indicated that emotional reactivity and increased negative affect are characteristic of the period of adolescence (e.g., Ciarrochi, Heaven, & Supavadeeprasit, 2008; Larson & Ham, 1993; Larson & Lampman-Petraitis, 1989; Larson & Asmussen, 1991; Larson, Moneta, Richards, & Wilson, 2002), with some research showing that females experience higher levels of negative affect during adolescence, as compared to males (Harter & Whitesell, 1996; Rosenblum & Lewis, 2006; Silk et al., 2003; Stapley & Haviland, 1989; Yeo, Ang, Chong, & Huan, 2007). Furthermore, Silk et al. (2009) found physiological, behavioural, and subjective evidence that puberty-related changes in the neuro-behavioural system affect emotional reactivity and regulation. Consequently, such experiences of emotionality can affect psychological adjustment (Larson, Raffaelli, Richards, Ham, & Jewell, 1990; Silk et al., 2003). Indeed, it has been found that adolescents who reported greater negative affect and greater emotional lability reported significantly more depressive symptomatology and problem behaviours (Silk et al., 2003). It is therefore unsurprising that research has shown that various forms of psychopathology, including both internalizing and externalizing disorders, typically onset during the adolescent period (e.g., Petersen & Hamburg, 1986; Pine, Cohen, Gurley, Brook, & Ma, 1998; Reardon, Leen-Feldner, & Hayward, 2009; Spear, 2000; Weisz & Hawley, 2002). In addition, it has also been found that the intensity of emotions that an individual experiences in this developmental period differs from that of childhood and adulthood, in that adolescents report greater average levels of positive and negative affect (Diener, Sandvik, & Larsen, 1985; Larson, Csikszentmihalyi, & Graef, 1980).
Thus, it is likely that the developmental changes that the period of adolescence brings affects the emotionality experienced by the adolescent. We now look at each domain of developmental change and its relationship with psychological adjustment and emotions.

Biological Changes and Emotions

Biological changes brought on by puberty occur rapidly during adolescence. The most apparent biological change is physical growth, with the individual taking on a more mature, adult, appearance (e.g., Dusek, 1991; Petersen & Hamburg, 1986). Other biological changes include internal hormonal changes and maturation of reproductive organs as well as secondary sexual characteristics (e.g., Dusek, 1991; Santrock, 2003). Height increases, weight gain, muscle growth, development of breasts in girls and appearance of facial hair in boys are all signals of entrance into adulthood (Dusek, 1991).

With the numerous biological changes that the adolescent goes through, it is inevitable that emotionality is linked to some of these changes. Although there is some evidence that hormonal changes brought on by puberty are linked to mood variability (Angold, Costello, Erkanli, & Worthman, 1999; Archibald, Graber, & Brooks-Gunn, 2006; Buchanan, Eccles, & Becker, 1992), most researchers advise against attributing merely hormonal factors to adolescents’ emotional adjustment, as consideration of other factors, such as pubertal timing, are essential (Archibald et al., 2006; Susman, Dorn, & Chrousos, 1991; Rosenblum & Lewis, 2006).

One study demonstrating hormonal changes affecting adolescents’ emotional state is a study of early and mid-adolescent girls by Angold and colleagues (1999). They found that girls’ elevated estradiol and testosterone levels were predictive of their becoming clinically depressed and that these factors eliminated effects due to
secondary sexual characteristics. Similarly, in their examination of male and female adolescents, aged between 9 and 14 years, Susman and her colleagues (1991) found that circulating levels of gonadal steroids and adrenal androgens were related concurrently to the negative affect elements of anxiety and depression. However, in their subsequent longitudinal analysis, it was found that negative affect, more so than hormone levels at first time of measurement, predicted negative affect 12 months later (Susman et al., 1991). Thus, it is cautioned that puberty-related hormones, although related to negative affect, should be considered together with other factors when assessing hormones as potential influences on the development of negative affect during puberty (Buchanan et al., 1992; Susman et al., 1991).

Another example of how pubertal changes can affect adolescents’ psychological and affective adjustment is in the area of sleep. Research on adolescent sleep patterns has suggested that adolescents’ biological clocks undergo a hormonal phase shift as they get older (Carskadon, Acebo, & Jenni, 2004; Crowley, Acebo, & Carskadon, 2007). The body’s circadian timing system undergoes alterations during puberty and this can affect adolescents’ sleep patterns substantially, delaying the onset of sleep for older adolescents (Carskadon et al., 2004; Crowley et al., 2007). The disturbances in their usual sleep patterns in turn affect their ability for mood regulation, to stay alert and learn effectively in school the next day (Carskadon et al., 2004). Furthermore, Spear (2000) has also speculated that the loss of sleep itself may alter stress recovery processes in adolescents.

In addition, recent research has also attributed emotionality of adolescents to biologically based changes in the neural systems that occur during puberty (Chambers, Taylor, & Potenza, 2003; Dahl, 2004; Steinberg, 2004, 2007; Spear, 2000; Silk et al., 2009). There is some evidence that during puberty, the systems in
the brain affecting reward sensitivity, social information and emotions become more sensitive and this contributes towards adolescents seeking novel, risk taking experiences that create high-intensity feelings (Dahl, 2004; Steinberg, 2004, 2007; Spear, 2000; Silk et al., 2009).

Biological changes appear as likely, if not more so, to affect psychological development and adolescent emotion indirectly, through interaction with other factors. The significance of changes in bodily growth is not lost on most adolescents and preoccupation with one’s body image is evident throughout adolescence, with some researchers saying that body dissatisfaction peaks during the adolescent period (Hill, 2002; Santrock 2003). Furthermore, research in the area of body image has shown that girls who report less satisfaction with their body image tend to have lower self-esteem than those who have a more positive body image (Dusek & Mcintyre, 2006).

Furthermore, biological development occurs at different rates for different individuals and pubertal timing appears to be linked to adolescents’ psychological adjustment (Archibald et al., 2006; Weisz & Hawley, 2002). Undergoing these changes unusually early or late relative to one’s peers may add additional pressure and stress for an adolescent because of sociocultural norms and one’s own interpretation about body changes (Archibald et al., 2006; Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997). In an epidemiological study of both boys and girls in a high school, Graber et al. (1997) found that early maturation in girls was linked to elevated depressive affect symptom levels and was also associated with a lifetime history of serious mental disorders such as depression, conduct disorder, substance abuse and suicide attempts. Girls who were late maturers also had elevated rates of lifetime history of depression in comparison to on-time maturers, while late-maturing boys
reported greater self-consciousness and more conflict with parents (Graber at al., 1997).

Cognitive and Brain Changes, and Emotions

Increases in most cognitive abilities, including intelligence, formal reasoning and processing capacity, occur during adolescence (e.g., Dusek, 1991; Holmbeck et al., 2000; Petersen et al., 1991; Spear, 2000). The increased capacity for abstract thought (e.g., Piaget, 1972) is a major cognitive development associated with the period of adolescence. Compared to earlier in their lives, adolescents are more able to consider multiple perspectives, engage in logical thinking and imagine hypothetical events (Keating, 1990). Research findings in developmental neuroscience indicate the human brain changes physically and the neural and cognitive systems appear to mature throughout the adolescent period (Chambers et al., 2003; Schwartz & Begley, 2002; Spear, 2000) contributing to the various cognitive changes and resulting behaviours commonly exhibited in adolescence (Dahl, 2004; Steinberg, 2004, 2007).

Evidence that the human brain changes during adolescence is presented in the review conducted by Chambers et al. (2003) on adolescent developmental neurocircuitry underlying motivation, impulsivity and addiction. Chambers and his colleagues reported a number of changes in the brain anatomy, such as decreases in brain metabolic activity from the age of 9 till adulthood, increases in the ratio of lateral ventricle to brain volume from ages 12 to 18 and increases in white matter density in the frontal cortex from ages 4 to 17. They stated that changes to the brain anatomy correspond to changes in cognitive function. Indeed, their review of research indicated that a number of measures of pre-frontal cortex functioning show marked improvements during adolescence. These measures included working memory, complex problem solving, abstract thinking and sustained logical thinking.
The development of abstract thought in adolescence allows for a host of new experiences with emotional implications, as changes in reasoning ability also bring about new abilities to reason about emotions (Rosenblum & Lewis, 2006). The enhanced cognitive capabilities in analyzing and reasoning lead to adolescents imposing higher standards and expectations of themselves and others. Unfortunately, this idealism may lead to a greater vulnerability to being disappointed. Furthermore, adolescents begin to recognise the complex and multiple emotions of themselves and others and are more able to engage in introspection of their own emotions (Rosenblum & Lewis, 2006). They also develop increased awareness of complex emotional cycles, such as feeling guilty for feeling angry, and begin to use more complex and sophisticated strategies to autonomously regulate emotions (Carr, 2006).

Larson and Asmussen (1991) found in their study that adolescents, more so than pre-adolescents, explained their negative emotions in terms of a “more distal world, including the feelings of others and anticipated future events” (p. 37). The authors concluded that the increase in negative emotions found in the adolescents in their study may be related, in part, to cognitive growth, as being able to reason in a more abstract, hypothetical manner expands the possibilities for both positive and negative emotional experiences that were not previously possible.

Social Changes and Emotions

Social changes experienced by adolescents include environmental and interpersonal relationship changes. In many countries across the world (e.g., Australia, Hongkong, Singapore, United States of America), the transition of leaving primary school to start secondary school occurs in early adolescence, while the move on to tertiary education or occupation occurs in later adolescence. Interaction and affiliation with peers take on particular importance during the period of adolescence
too. According to the developmental viewpoint of Selman (1980), the cognitive advances that occur in early adolescence, especially in perspective taking, increase collaborative orientation and empathic understanding in the adolescent’s relationships with others, thereby allowing and encouraging the adolescent to become more strongly attached to peers. It is also not uncommon for an adolescent to face peer pressure to try new experiences and to conform with his or her peer group (Spear, 2000). Furthermore, this period marks the start of engagement in romantic relationships for many teenagers (Simmons & Blyth, 1987). Changes occur within the adolescent’s family life as well. In the search for one’s identity and independence, the young adolescent begins to demand greater autonomy which leads to an alteration in the parent-child relationship. This increased independence is often labelled as rebelliousness by some parents, although the push for autonomy is a normal course of development for adolescents.

Given the many new challenges and stressors in this period, it is unsurprising that research has shown that this period is characterised by an increase in negative life events, such as falling out with close friends and not getting on with parents (Larson & Ham, 1993). However, it appears that events that bring on emotional arousal are a buildup of daily stressors rather than major life events (Compas, Howell, Phares, Williams, & Giunta, 1989; Brooks-Gunn, 1991) and it is this buildup of daily stressors and hassles that are sources of risk for emotional and behavioural problems in adolescence (Spear, 2000).

Furthermore, it is possibly the adolescent’s perception of the event that makes it stressful rather than the event itself, as research has shown that the perception of events as being stressful is increased in adolescents relative to children and adults (Larson & Asmussen, 1991; Larson & Ham, 1993; Spear, 2000). Larson and Ham
(1993) noted their finding that parents and older adolescents were incongruous in their ratings on items (e.g., “Getting along worse with parents” and “Getting along worse with siblings”) that required subjective evaluation of family life. In their study, parents indicated improvement in relationships with older adolescents, whereas the older adolescents reported deterioration in familial relationships, leading the authors to suggest that this difference indicates that events are perceived negatively partly due to intra-subjective interpretation. With the increase in actual daily hassles as well as their negative perception of events, it is inevitable that many adolescents would find the period of adolescence stressful.

Adolescence is also a time of transformation in family relationships (Holmbeck et al., 2000; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996) and this transformation can be a source of stress and emotional arousal for many adolescents. As the adolescent develops cognitively, he or she can reason in more logical ways with parents compared to reasoning in earlier childhood. A previously accepted explanation when the adolescent was younger may now no longer be accepted and the adolescent is less likely to conform if they believe there to be deficiencies in reasoning. These cognitive changes of the adolescent alter the parent-child relationship and may at times make interaction conflictual and painful for both parent and adolescent (Petersen & Hamburg, 1986).

Nevertheless, research indicates that parent-adolescent conflict increases in adolescence and is common during this stage but does not reach intense proportions (e.g., Holmbeck, 1996; Steinberg & Silk, 2002). Instead, much of the conflict involves everyday events, such as keeping the bedroom clean, choice of activities and chores (Smetana & Gaines, 1999; Smetana, Yau, Restrepo, & Braeges, 1991). Furthermore, not all conflicts appear to be negative for the family relationship during
adolescence. Larson et al. (1996) found that although time spent with family decreased throughout adolescence, this disengagement was not due to factors internal to the family relationships but to external factors, such as increasing involvement in outside activities. Moreover, it was also found that although there was a decrease in positive emotional states during family interactions for the younger adolescents, who also perceived their family members as less friendly, these states and perceptions became more favourable in older adolescents. Thus we see that although increased conflict occurs within the family, the relationship between the adolescent and their family undergoes a transformation as the individual proceeds through early, middle and later adolescence, and most adolescents do not end up severing ties with families (Holmbeck et al., 2000).

Peers take on particular importance during the period of adolescence and it is recognised that peer relationships contribute significantly to shaping the adolescent’s psychosocial development (Holmbeck et al., 2000). At the same time, research has shown that peer relationships can contribute significantly to positive and negative emotionality in adolescents (Larson & Amussen, 1991; Larson et al., 1980). For example, Larson et al. (1980) found a wider variation in mood amongst adolescents who spent more time with friends and those who spent more time thinking about heterosexual relationships. Similarly, in the previously mentioned study by Larson and Asmussen (1991), it was found that attribution of both positive and negative emotions to the life domain of Friends was cited significantly more often by adolescents than preadolescents. In addition, significantly more adolescents than preadolescents perceived that social causes (e.g., affiliation with others, feelings towards others, circumstances of others) were the sources of their negative emotions (Larson & Asmussen, 1991). The authors suggested that the development of abstract
thought appears to have increased the susceptibility to negative emotions in social circumstances as the adolescent is now capable of deeper analysis of social situations and is more sensitive to the discrepancy between appearance and reality (Larson & Asmussen, 1991).

The social reorientation that occurs during the period of adolescence is apparent not only in the stronger attraction to the peer context but also in the romantic context (Forbes & Dahl, 2010). Romantic relationships often feature in the emotional experiences of adolescents. The entry into the realm of romantic relationships brings new positive emotions but is at times emotionally stressful for adolescents as well (Larson, Clore, & Wood, 1999; Rosenblum & Lewis, 2006). Larson and Asmussen (1991) highlighted their finding that the biggest new life domain experienced by adolescents that elicited both positive and negative emotions is the domain of romantic relationships, both real and fantasised ones. A few studies have also shown that adolescents who report being involved in more romantic activities are more likely to experience depressive symptoms (Davila, Steinberg, Kachadourian, Cobb, & Fincham, 2004; Davila et al., 2009; Joyner & Udry, 2000). Other potential contributors to a stressful emotional romantic experience include social pressure to engage in sexual activity, unwanted sexual attention and regretted sexual experiences (Rosenblum & Lewis, 2006).

Differences Between The Period of Adolescence and Other Life Stages

With the multitude of developmental changes occurring in adolescence, researchers have long established that results of studies on childhood or adulthood cannot merely be generalised to adolescents without further examination. The period of adolescence is a transition between childhood and adulthood with biological, cognitive and socioemotional changes that bring about psychological adjustment and
related emotions that are exclusive to the period of adolescence. As has been mentioned, emotional experience can be especially intense in adolescence and various studies have indicated that adolescents experience more frequent and intense emotions than younger or older individuals (Larson & Asmussen, 1991; Larson et al., 1980; Larson & Ham, 1993; Larson & Lampman-Petraitis, 1989; Diener et al., 1985).

Larson and Lampman-Petraitis (1989) found a linear relationship between age and average mood states in their study of 473 youths aged from 9 to 15 years. Average daily mood was lower amongst the older participants who reported more dysphoric average mood states as compared to the younger pre-adolescents. Furthermore, it appears that the sources of positive and negative emotions for preadolescents and adolescents differ as well, with preadolescents attributing both negative and positive emotions more significantly to the activity in which they were immediately engaged, as compared to adolescents (Larson & Asmussen, 1991). Larson and Ham (1993) found that not only were there more negative life events for adolescents as compared to pre-adolescents, the negative life events were a significant predictor of negative affect for older but not younger students. Taken together, these studies indicate that life events and activities during the specific period of adolescence, together with the perception of events as being negative, contribute to differences found in the mood states of adolescents, as compared to younger individuals.

Available literature over the years has highlighted the many differences between the psychological makeup of adolescents and adults and the resulting differences in emotional experience and behaviours (e.g., Diener et al., 1985; Larson et al., 1980; Ryan, 2009; Spear, 2000; Steinberg, 2007). In their study comparing emotions in adults and adolescents, Larson et al. (1980) found that not only were the average
mood states of adolescents significantly lower than adults, adolescents experienced wider mood swings as well. It was also found that both high and low moods in adolescents disappeared more quickly and appeared less stable as compared to adults. However, adolescents’ moods were not less predictable than those of adults and were not strongly related to psychological maladjustment. Their findings indicate that there is little evidence of a tumultuous emotional journey during the adolescent years, although there definitely is greater mood variability in adolescents than adults.

Similar findings were reported by Diener et al. (1985). Their research showed that although differences were not large, there were nevertheless clear age differences in emotional intensity between adolescents and adults. In a study by Ryan (2009) looking at differences in personality traits and dimensions between adolescents and young adults, significant differences were also found between the two age groups in the overall dimensions of constraint (which measures characteristics of impulsivity and behavioural regulation) and positive emotionality (which measures mood and tendencies toward positive emotions). The adolescents displayed significantly lower levels of control and significantly lower levels of positive emotionality compared to the young adults. Thus it appears that even the short period of difference between adolescence and young adulthood contributes to differences in emotional experience and behaviours.

The differences between emotional experiences of adolescents as compared to other life stages can be attributed in large part to development in the physical brain structure and associated cognitive changes that occur during this time. Research into the human brain structure has indicated that adolescents are more emotional, impulsive and engage in more risk-taking behaviours compared to other ages due to age-related neural alterations (Chambers et al., 2003; Dahl, 2004; Spear, 2000;
Steinberg, 2004, 2007). Indeed, it appears that adolescents’ risky behaviours are specific to the period of adolescence and are emotionally influenced (e.g., Chambers et al., 2003; Dahl, 2004; Steinberg, 2004). Chambers and his colleagues (2003) noted that in adolescents, brain regions associated with socioemotional activity undergo greater activation compared to the brain region associated with cognitive control. At the same time, there is a relationship between activation of the brain region associated with risk-taking and socio-emotional activity, providing an explanation for the increased impulsivity and risk taking behaviours in adolescents (Chambers et al., 2003). It is believed that biologically-based changes in the neural systems that occur during puberty affect reward sensitivity and contribute to the increased tendency towards novelty, risk taking and sensation seeking (Dahl, 2004; Steinberg, 2004).

Researchers like Dahl (2004) and Steinberg (2004, 2007) believe that the heightened risk taking in adolescents is the product of interaction between two brain networks – the socioemotional brain network and the cognitive control brain network. The socioemotional brain network, which is localized in limbic and paralimbic areas of the brain, is remodelled in early adolescence by hormonal changes brought on by puberty. It is especially sensitive to social and emotional stimuli and is particularly important for reward processing. The cognitive-control network, which includes the lateral prefrontal and parietal cortices, controls executive functions such as planning, logic, thinking ahead and self-regulation. In contrast to the socioemotional brain network, the cognitive-control network matures more slowly, independently of puberty. Under conditions of low arousal and cool emotions, adolescents often appear to be relatively good at making rational decisions. However, under conditions of intense emotional arousal, the socioemotional network is activated to the extent that the cognitive-control network is not strong enough to impose regulatory control
over the impulsive and risky behaviour brought on and influenced by the activation of
the socioemotional network. It is only through time and experience that the
cognitive-control network matures such that by adulthood, the cognitive-control
network is able to modulate inclinations towards risk taking even under conditions of
heightened arousal in the socioemotional network. Thus, the effects of puberty on the
maturational process of the human brain structure cannot be underestimated in
understanding adolescent emotions and behaviour and it also explains a portion of the
differences between the emotional experience of an adolescent as compared to the
emotional experience of a child or adult.

The difference in emotional experiences between adults and adolescents is
further illustrated when looking at effectiveness of treatment protocols for emotional
disorders. It is noted that treatment for emotional disorders in adolescents has often
been adapted from adult treatments (e.g., Hoffman & Mattis, 2000). However, in
looking at panic disorder, while literature using adult populations has shown that the
treatment components of interoceptive exposure (Craske, Rowe, Lewin, & Noriega-
Dimitri, 1997) and situational exposure (Schmidt et al., 2000) are efficacious
treatment components in a treatment protocol for panic disordered adults, preliminary
examination of the relative efficacy of the same protocol treatment components with
adolescents has suggested that psychoeducation and cognitive restructuring were the
two treatment components that led to observations of sudden symptom improvements
(Micco, Choate-Summers, Ehrenreich, Pincus, & Mattis, 2007). Adolescents also
reported that these were the two components that they found most helpful (Micco et
al., 2007). This difference in treatment efficacy for adolescents from that of adults
highlights the importance of the need for a deeper understanding of the unique
emotional processes adolescents experience before treatment can be tailored.
Summary

It can be seen that the period of adolescence brings about emotionality which appears to be different from that of other life stages, such as pre-adolescence or early adulthood, due to the many cognitive, biological and social transitions that the adolescent experiences. It is therefore important to take developmental factors into consideration when looking at how adolescents experience emotions and when conceptualising and delivering treatments for psychological disorders in adolescents.
Culture and Emotion

Most of past research on emotion and emotion regulation in adolescents has been conducted on populations from Western countries (e.g., Australia, America, Germany and United Kingdom). In particular, a literature search on the fear of emotion construct, as well as the ACS used to measure fear of emotion, revealed that it is a construct mentioned mainly in studies carried out with adult populations in the West (e.g., Berg et al., 1998; Price et al., 2006; Williams et al., 1997). It is only in recent years that researchers have started looking to modify and validate the ACS in a Western Australian adolescent population (e.g., Geddes & Dziurawiecz, 2007; Geddes et al., 2007). Thus, the applicability of this instrument has only been tested in Western populations and it is not known if it is an instrument that maintains its validity in non-Western populations.

It is important to recall at this point that emotions arise from person-environment interactions and cannot be understood without examining either the individual or the individual’s relations to the surrounding context and environment (Campos et al., 1994; Zeman et al., 2007). Thus, it should not be overlooked that culture and ethnic variables feature in emotional development. Norms for emotions differ among cultures (Campos et al., 1994) and it is expected that cultural factors are likely to influence the development and implementation of emotion regulation as well (Fox & Calkins, 2003; Gross, 1998a; Izard, 1983; Mesquita & Albert, 2007). In recognising cultural factors in the development of emotion regulation, it is noted then that emotion reactivity, and consequently the fear of emotion construct, may therefore
be also subject to cultural influences.

Culture can be defined as “the collective programming of the mind which distinguishes the members of one human group from another” (Hofstede, 1980, p. 25) and can be viewed as patterns of thinking, attitudes, feelings, behaviours, and other symbolic resources embodied in daily practices, routines, customs and social institutions of a group of people (Hofstede & Hofstede, 2005; Kitayama, Karasawa, & Mesquita, 2004). Culture determines what an individual is exposed to from a young age, creates meanings of social experiences and generates social expectations for the individual (Campos et al., 1994). Given that culture affects one’s values and goals, the same events do not always hold the same meanings to individuals of different cultures and the same responses may not always be manifested when individuals of different cultures encounter the same problem (Campos et al., 1994).

Indeed, a society’s cultural characteristics such as collectivism or individualism influences one’s beliefs, values and attitudes (Markus & Kitayama, 1991; Triandis, 1989). People of different cultures differ in conceptions of the self (Markus & Kitayama, 1991). On the one hand, individualistic cultures emphasise personal goals and behaviours that are based on concern for oneself and one’s immediate family (Hofstede & Hofstede, 2005; Markus & Kitayama, 1991; Triandis, 1989). Individualistic cultures tend to foster an independent construal of self, whereby uniqueness and independence are emphasised (Markus & Kitayama, 1991; Kitayama, Markus, & Matsumoto, 1995; Singelis, Bond, Sharkey, & Lai, 1999). Collectivistic cultures, on the other hand, emphasise the interest of the group over the interest of the individual, and behaviours are based on concerns for others and care for traditions and values (Markus & Kitayama, 1991; Triandis, 1989). Collectivistic societies foster an interdependent construal of the self, whereby one sees the self as
part of a group and recognises that one’s thoughts, feelings and behaviours are influenced by, and contingent on, others and the group (Markus & Kitayama, 1991; Kitayama et al., 1995; Singelis et al., 1999; Suh, Diener, Oishi, & Trainidis, 1998). Cultural psychology researchers have suggested that Asian countries have a collectivistic orientation, while Western societies tend to be more individualistic (Hofstede, 1980; Hofstede & Hofstede, 2005; Kitayama et al., 1995; Markus & Kitayama, 1991; Triandis, 1989).

These different cultural systems and their subsequent implication for the self-concept have consequent effects on values, social practices and norms surrounding psychological constructs such as emotion (Izard, 1983; Markus & Kitayama, 1991; Parkinson, Fischer, & Manstead, 2005). The universality of emotion is not disputed here, in that emotions are in essence biologically hardwired capabilities that aid survival (Cole et al., 2004; Keltner & Gross, 1999). It is emphasised however, that the emotional system is dynamic and that emotions must be inferred from the individual’s relations to the surrounding social context and situation. Cues considered salient in eliciting emotions are different across cultures and different cultures interpret and deal with emotions differently. Culture thus shapes and organises one’s emotional experience and subsequent course of actions. Concurrently, emotions are intricately weaved into other developmental processes, shaping our experiences of the world, which in turn help individuals assume cultural identities. Emotions embedded in everyday life, such as parental reactions to children’s behaviour, peer and teacher interactions in school and other socialisation practices, help children learn the norms and values of their culture (Goetz & Keltner, 2007).

Perception of the valence of an emotion in different cultures is but one example of how emotionality is influenced by culture. Although no emotion in itself
is inherently good or bad, the valence of an emotion as viewed by individuals often varies between cultures. Feelings, such as pride, which express and highlight the positive attributes of the independent self are often viewed favourably in individualistic cultures, as such feelings are associated with self-esteem and personal achievements (Kitayama et al., 2004; Parkinson et al., 2005). In contrast, collectivistic cultures favour emotions, such as respect, that highlight connectedness and social engagement with other people (Kitayama et al., 2004). In their review on self-conscious emotions across cultures, Goetz and Keltner (2007) noted that pride was considered acceptable and desirable in the Western cultures, such as America and Australia, but was considered to be a negative emotion in Asian cultures such as China. Similarly, not all unpleasant emotions are viewed negatively across cultures. For example, although shame is often perceived to be an unpleasant emotion in both individualistic and collectivistic societies (Parkinson et al., 2005), experiences of shame appear to have less negative consequences in collectivistic cultures (Goetz & Keltner, 2007; Wong & Tsai, 2007). Shame plays an important function in collectivistic cultures, as it fosters interdependence by motivating members of the group to restore harmony in relationships and is often used as a mechanism of social control, especially in childrearing in Asian cultures (Goetz & Keltner, 2007; Parkinson et al., 2005). It has also been indicated that Asian societies may view shame to be a desirable state when it encourages people to behave properly (Edelstein & Shaver, 2007; Wong & Tsai, 2007).

Emotion regulation, as part of the emotion process system, is also subject to cultural influences as emotion regulation involves selecting responses acceptable to one’s social or cultural context (Campos et al., 1994). Indeed, emotion regulatory goals are often culture specific as different cultures have different rules, guidelines
and norms regarding emotion regulation, for emotion to serve its specific social functions (Gross, 1998a). As previously discussed, development of emotion regulation starts from a very young age through interactions with parents and caregivers (Fox & Calkins, 2003). Parents and caregivers are influenced, in turn, by their own cultural and socialisation backgrounds, which affect their parenting styles and the way emotion regulation strategies are imparted to their children (Calkins & Johnson, 1998). As the individual continually interacts with the environment, emotional responses that are congruent with one’s cultural model are more likely to be reinforced while incongruent emotional responses are less frequently reinforced. Incongruent emotional responses are thus subsequently more likely to be regulated or less likely to be spontaneously activated (Kitayama et al., 2004; Mesquita & Albert 2007).

There has been debate in the study of facial expressions regarding whether there are a few “basic” human emotions that are universal across cultures (e.g., Ekman, 1992, 1994; Russell, 1994). It is not the aim of the current thesis to enter into this discussion. However, it is argued here that emotional expression is indeed influenced by culture. Societal and cultural norms determine display rules for emotion expression and individuals often abide by these display rules to fit in with one’s culture. Appropriate emotion regulation occurs in using emotion regulation strategies flexibly to express emotions within the boundaries of cultural display rules (Cole et al., 1994; Saarni, 1990).

Thus, individuals tend to maintain a culturally desirable self (Singelis et al., 1999). Collectivistic cultures emphasise social harmony, consideration of one’s actions on in-group members. Therefore, one’s social role or position, as well as consideration for social harmony, are more likely to be factors in emotion expression
or suppression in a collectivistic culture than in an individualistic one (Parkinson et al., 2005). Furthermore, emotional expression of “positive” emotions such as happiness may be more likely used as an instrumental action to maintain social harmony rather than a true reflection of one’s feelings in a collectivistic society (Markus & Kitayama, 1991).

In emphasising independence and autonomy, individualistic cultures are more likely to underline the importance of expressing one’s authentic emotions, regardless of their perception of the valence of the emotion (Markus & Kitayama, 1991; Parkinson et al., 2005). In their review, Parkinson et al. (2005) noted that despite minor inconsistencies in findings, studies have generally found that participants with collectivistic values reported greater regulation of emotions (such as anger, contempt, and disgust) that are perceived as threatening to social harmony and connectedness, especially in relation to family members. Similarly, in their discussion on the effects of culture on the self, Markus and Kitayama (1991) suggested that emotions such as anger, frustration and pride have an internal attribute focus, as these emotions are elicited by factors relating to one’s own needs, goals, desires or abilities. As such, they argue that public displays of such emotions are less frequently expressed by those in collectivistic cultures with interdependent selves, as these emotions may be detrimental to cooperative social interactions (Markus & Kitayama, 1991). The authors noted that although Western scholars have debated the need and desirability of expressing one’s anger, no such controversy appears to exist among those in predominantly interdependent cultures, where restraining an overt expression of anger to maintain harmony is looked upon favourably and considered the norm (Markus & Kitayama, 1991).
Indeed, anger is an excellent example of an emotion that appears to be highly governed by cultural norms. Although anger is an emotion that is experienced by people across cultures, anger appears to mean different things in different cultures and expression of anger varies widely between cultures (Markus & Kitayama, 1991; Parkinson et al., 2005). Consistent with this analysis, Tanzer, Sim, and Spielberger (1996) found that state and trait anger of Singaporean Chinese were similar to those found in American and other Western samples. However, important differences in types of anger expression were found for Singaporean Chinese women when compared to Singaporean Chinese men and their American counterparts. The authors concluded from their findings that control of anger appeared to be more characteristic for Singaporean females than for Singaporean males and externalisation of anger appeared to be especially unacceptable to Singaporean Chinese women (Tanzer et al., 1996). Thus, it appears that cultural norms for different societies as well as different genders within the same country both come into play in influencing anger expression.

Cultural practices and socialisation have also been found to promote different emotion regulation strategies used by individuals in different situations. For example, individualistic cultures promote the use of suppression primarily in situations that require the self-protective acts of withdrawal in the face of social threats (Markus & Kitayama, 1991). However, the interdependent and socially oriented nature of a collectivistic culture encourages the use of the suppression strategy in situations where expression of feelings is expected to not only have an adverse effect on oneself but also when social harmony and relationships are threatened (Butler, Lee, & Gross, 2007; Parkinson et al., 2005). Consequently, although suppression has been linked to negative consequences in studies conducted in the western cultures (e.g., Gross & John, 2003; John & Gross, 2004), Butler and her colleagues (2007) suggested that
suppression in Asian cultures may not lead to consequences that are as deleterious as those found in Western cultures. They argued that given that suppression was related to self-protection in western cultures, it is likely to be associated with unpleasant emotions such as fear and anger, while given that suppression is more normative for Asians and often used prosocially, it may therefore not be associated with negative associations for Asians.

Indeed, Butler and her colleagues (2007) found that women with European-Asian bicultural values reported higher levels of habitual suppression, which was not associated with higher levels of negative emotion, than those of women with predominantly European cultural values, whose levels of suppression were associated with negative emotions. They also found that although suppression resulted in negative social consequences for all participants, these consequences were more pronounced for women with predominantly European values when compared to women of bicultural European-Asian values (Butler et al., 2007). Similarly, Matsumoto et al. (2008) found that suppression was used more in countries with collectivistic values and that suppression was associated with positive consequences on the social level. Results from these studies appear to confirm the hypotheses that collectivistic cultures engage in more habitual suppression than individualistic cultures and that there are less negative consequences associated with suppression in collectivistic cultures.

Thus, it appears that cultural differences between Western and non-Western societies preclude the generalization of discussion about emotions described in Western research literature to that of non-Western collectivistic societies. Not only do collectivistic cultures view certain emotions differently from individualistic cultures, it has been said that the personal significance of emotional experience does
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not appear to factor as much into judgement of life satisfaction in collectivistic cultures as compared to individualistic cultures (Parkinson et al., 2005). Furthermore, it appears that members of collectivistic cultures do not express emotions to reflect their true emotional experience and are more likely to play down their emotions (e.g., Markus & Kitayama, 1991; Parkinson et al., 2005), as well as engage in emotion regulation strategies such as suppression more often than members of individualistic cultures (Butler et al., 2007; Matsumoto et al., 2008).

It is therefore questioned if the fear of emotion construct will apply to a collectivistic culture. In view of the literature reviewed thus far, it is believed that individuals from collectivistic cultures may indeed experience fear of emotions and may, in fact, experience such fear to a larger degree than individualistic cultures, given that it is culturally appropriate to restrict experience and expression of “true” emotions, if the emotions do not serve to enhance the social bonds of the larger community. However, given that emotions hold different meanings and are interpreted differently in different cultures, the emotions that are feared in an individualistic culture may differ significantly from those feared in collectivistic cultures.

Therefore, it is of interest in the current thesis to address the lack of research on the applicability of the fear of emotion construct across cultures and in adolescent populations, given that developmental and environmental factors are essential in the understanding of emotional processing in adolescents.

Summary

Norms and expectations for emotional experiences, emotional expressions and, consequently, emotion regulation differ amongst cultures. Emotion regulation strategies also vary across individuals of different cultures. Therefore, it is recognised
that the fear of emotion construct may be subject to cultural influences. However, available literature thus far indicates that the fear of emotion construct has been studied mainly in adult populations in Western countries with individualistic characteristics and has not been examined in adolescent populations in collectivistic societies.
CHAPTER 6
LITERATURE REVIEW: EMOTION ASSESSMENT IN ADOLESCENTS ACROSS CULTURES

Measuring Emotion in Adolescents

Given the multidimensional nature of emotion-related phenomenology, the assessment of one’s emotional experience necessitates analysis on various levels (e.g., cognitive, affective, physiological) and from different perspectives (e.g., observer versus self), together with an understanding of the larger sociocultural context (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Larsen & Prizmic-Larsen, 2006; Zeman et al., 2007). Yet, developmental status and stressors unique to adolescence have often been neglected in measures of emotions in this age group. Emotion measures for adolescents also do not always take into consideration the social and cultural environment of the adolescent.

It has been highlighted that many inventories used with adolescents were originally designed for adult samples and merely used with adolescents without modifications or validation of the inventory within adolescent populations (Compas et al., 2001). Indeed, neglecting to consider adolescence specific developmental changes and stressors can potentially compromise overall construct validity of specific measures (Compas et al., 2001) and researchers have commented that the lack of validated age-appropriate measures is an obstacle to advancing research in the understanding of emotion regulation in children and adolescents (e.g., Walden, Harris, & Catron, 2003; Zeman et al., 2007). Furthermore, not only are there few instruments that have been validated on adolescents, there are fewer instruments that have been specifically cross-culturally validated to examine the applicability of the tool across cultures. Progress in research in the area of adolescent emotion is likely to be slow if
assessment measures of emotions do not capture adequately the emotional experience in adolescents, with an understanding of the adolescent’s sociocultural context.

In considering psychopathology in adolescents, it is also essential to have a variety of psychometrically sound emotion measures that can adequately discriminate between clinical and non-clinical adolescent samples. Although it is acknowledged that there is an increasing awareness of the need for more rigorous assessment of emotions in adolescents and for more assessment tools and services that are sensitive to the unique adolescent stage of biological, cognitive, and psychosocial transition into adulthood (e.g., Jones, Leen-Feldner, Olatunji, Reardon, & Hawks, 2009; Weinberg & Klonsky, 2009; Zeman et al., 2007), most of these instrument development studies did not expand their normative samples to include clinical populations. Research using both clinical and non-clinical adolescent samples in validation of emotion measures is required to eventually determine clinically significant cut-off scores which can help increase understanding of dysfunctional emotional processes that may lead to psychopathology (Zeman et al., 2007). Therefore, this thesis hopes to address the lack of available emotion measures that have been validated in both clinical and non-clinical adolescent samples.

**Available Self-Report Emotion Measures For Adolescents**

Self-report measures are customarily essential in order for a comprehensive understanding of the individual’s emotional experience (Flannery et al., 1994; Izard & Ackerman, 1998; Zeman et al., 2007). In considering emotion assessment in adolescents, although parental reports of observations of adolescents’ emotional behaviour are important, they do not allow for an understanding of the individual’s emotional experience or emotional competence. In contrast, self-reports allow the
individual to report their subjective emotional state as well as their subsequent action tendencies.

The following review looks at available self-report questionnaires of emotions for adolescents. This review includes only questionnaires that assess emotion and emotion-regulation in general, as opposed to measurement of specific emotions (e.g., depression, anxiety), as the instruments that are of interest here are those that are quick, valid and reliable in assessing components of the emotional process. It is noted that similar to emotion measures in adults, many of the following instruments have been validated only with samples of adolescents in Western societies.

One recent adaption of an adult emotion measure is the Affect Intensity and Reactivity Scale for Youth (AIR-Y; Jones et al., 2009). In addressing the lack of instruments for measuring affect intensity in adolescents, Jones and her colleagues (2009) adapted the Affect Intensity Measure by Larsen (1984; as reviewed in Jones et al., 2009) to suit an adolescent population. This adapted instrument was validated on 205 community-based adolescents between the ages of 10 and 17, and a clinical sample of 179 adolescents from a group-based residential treatment, aged between 13 and 17 years.

Confirmatory factor analyses indicated that a three-factor model comprised of Positive Affectivity, Negative Intensity and Negative Reactivity provided the best fit for their adolescent data (Jones et al., 2009). The AIR-Y factors demonstrated acceptable internal consistency and the AIR-Y showed good test-retest reliability. The AIR-Y also provided incremental validity relative to other measures of affect in predicting mood ratings following emotion-elicitation procedures that elicited positive and negative emotions. These procedures included watching a short film clip depicting feelings of grief and activating a plush toy that giggled and shook as if
having a laughing fit when activated. According to the authors, these procedures have been demonstrated to produce sadness and positive affect respectively.

In addition, preliminary evidence of the clinical utility of the AIR-Y was demonstrated in its correlations with a youth self-report measure of clinical symptomatology. Furthermore, the Negative Intensity factor of the AIR-Y was able to distinguish between the clinical sample exhibiting internalising symptoms and the community comparison sample, while the clinical sample exhibiting externalising symptoms evidenced significantly lower Negative Reactivity and Positive Affectivity responses as compared to the community sample (Jones et al., 2009).

Although a promising measure for use with adolescents, further research needs to be conducted on the AIR-Y to further examine the validity of the instrument. The clinical utility of AIR-Y can be further clarified through more in-depth examination of the relation of its factors with clinical psychopathology symptoms. In addition, limitations of the Jones et al. (2009) study included the narrow range of affective states that the researchers attempted to produce in the laboratory, which may or may not translate into the variety of real world emotions experienced by adolescents.

The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001) was constructed to measure the cognitive emotion regulation strategies people used after experiencing negative life events. The questionnaire was designed to be administered to individuals aged 12 years and older, as the authors believed that those above the age of 12 have the cognitive abilities to grasp the meaning of the items. The instrument was designed with nine conceptually distinct scales of Self Blame, Blaming Others, Acceptance, Refocus on Planning, Positive Refocusing, Rumination or Focus on Thought, Positive Reappraisal, Putting into Perspective and Catastrophising.
Garnefski et al. (2001) validated the CERQ on a sample of secondary school students aged between 12 and 16 years. The authors reported that exploratory factor analysis supported the allocation of the items to the scales, while the reliabilities of the scales were in the acceptable to good range. The data also revealed that cognitive coping strategies could be categorised further into *more adaptive coping strategies* and *less adaptive coping strategies* with the less adaptive coping strategies having a positive relationship with measures of depression and anxiety symptoms.

This questionnaire has been further validated on other diverse samples (d’Acremont & Van der Linden, 2007; Francoise, Van der Linden, d’Acremont, & Zermatten, 2006; Garnefski & Kraaij, 2007; Garnefski, Kraaij & van Etten, 2005) and also adapted for use with a younger population (Garnefski, Rieffe, Jellesma, Meerum Terwogt, & Kraaij, 2007; Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010). Construct and criterion validity have been demonstrated in these studies (e.g., Garnefski et al., 2005; Legerstee et al., 2010). However, as this test only measures cognitive coping strategies, the use of other measures of coping, that include non-cognitive strategies, would be necessary for a more in-depth assessment of individual’s emotional regulation strategies.

The Regulation of Emotions Questionnaire (REQ; Phillips & Power, 2007) is a relatively new measure, designed specifically with adolescents in mind, that assesses the frequency with which adolescents use functional and dysfunctional emotion regulation strategies. Based on the literature on emotions and emotion regulation, the authors constructed the scale to measure emotion regulation strategies that fell into four subscales – *internal-functional* (i.e., drawing on internalised resources and using functional strategies), *internal-dysfunctional* (i.e., drawing on internalised resources and using dysfunctional strategies), *external-functional* (i.e.,
drawing on externalised resources and using functional strategies) and external-dysfunctional (i.e., drawing on externalised resources and using dysfunctional strategies).

Phillips and Power (2007) used participants aged between 12 and 19 years, in the validation of this measure. Both exploratory and confirmatory factor analyses indicated that the data supported the structure of the REQ and its scales. The authors reported that the subscales were of acceptable internal consistency, but reliability of the total scale was not mentioned. Construct validity was indicated through the expected relationships between the subscales of the REQ and adolescent measures of emotional and behavioural problems, psychosomatic health problems and quality of life.

There are a number of limitations in this study which Phillips and Power (2007) acknowledged. Firstly, adolescents were not consulted in the generation of items for this scale, although it was argued that the authors drew on their clinical experience with adolescents and the use of expert consultancy was considered to add to the validity of the measure. Given that a considerable number of items (12 items) were dropped after preliminary analysis (e.g., missing values analysis, skewed and kurtotic items), it is likely that input from adolescents may have improved initial item generation which would have improved the psychometric properties of the scale from the initial stages. Another limitation of their study was the use of the same data for exploratory and confirmatory factor analyses. In fact, data from the same cohort was used to refine the scale from being a 32-item scale to 20 items after preliminary analysis and then to 18 items after exploratory factor analysis. The same responses on these 18 items were then used for confirmatory factor analysis. Thus, although results
appear promising, further exploration and validation of this measure should be carried out to establish that the REQ is suitable for the adolescent population.

There are a limited number of available self-report scales that address emotional processing and reactivity in adolescents. The revised Emotion Awareness Questionnaire (EAQ-30; Rieffe et al., 2008) is a questionnaire that attempts to measure emotional awareness and processing in adolescents. The EAQ-30 is an updated version of the Emotion Awareness Questionnaire (EAQ, Rieffe et al., 2007) which was developed with the aim of measuring key aspects of emotion awareness in children. Revisions to the EAQ were made, as exploratory factor analysis had identified items that did not fall on the initial proposed dimensions. Relevant current literature was considered and new items were included on the EAQ-30. Items that showed a moderate or poor fit on their keyed factor in the original EAQ were also omitted from the EAQ-30. Thus, the EAQ-30 was designed with a six-factor structure describing six facets of emotional functioning: 1) Differentiating Emotions, 2) Verbal Sharing of Emotions, 3) Not Hiding Emotions, 4) Bodily Awareness of Emotions, 5) Attending to Others’ Emotions, and 6) Analyses of Emotions.

The target age group for the EAQ-30 was late childhood and adolescence, as the authors believed that this age period is especially important because children become able to reflect upon their own behaviour and emotions at around the age of nine (Rieffe et al., 2008). Primary and secondary school students made up the participants of this study. Exploratory factor analyses revealed that all but one item loaded on their keyed factors. Interestingly, the EAQ-30 scales were found to have a higher internal consistency for the older age-group (Cronbach alphas ranged between .74 and .77) as compared to the younger age-group (Cronbach alphas ranged between .64 and .68). Reliability of total scale was not mentioned. Results showed good
criterion validity with a related measure for emotional self-efficacy, while concurrent validity was established with correlations in expected directions with other measures of anxiety, depression, somatic complaints and non-productive thinking. It is encouraging that developers of the EAQ and EAQ-30 are seeking to continuously refine the instrument. Although results of this study indicate that the instrument may not be as reliable for younger children, it appears to be a potentially psychometrically sound measure of emotional awareness in adolescents.

Recognising that the field of emotion dysregulation lacks a comprehensive assessment measure to be used with adolescents, Weinberg and Klonsky (2009) validated the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) in a large community adolescent sample with participants aged 13 to 17 years. The DERS measures six clinically relevant domains of emotion dysregulation, including nonacceptance of emotion, lack of emotional awareness, limited access to emotion-regulation strategies, difficulties engaging in goal-directed behaviour when emotionally aroused, impulse control difficulties and lack of emotional clarity.

Exploratory factor analysis on the adolescent sample conducted by Weinberg and Klonsky (2009) revealed results similar to the original analysis conducted by Gratz and Roemer (2004). The data supported an interpretable six-factor structure solution that mapped onto the six proposed subscales. The DERS total scale was found to have excellent internal consistency while the six subscales had adequate to high internal consistencies. Construct validity was demonstrated with the DERS significantly correlating with measures of psychological problems reflecting emotion dysregulation, specifically depression, suicidal ideation, anxiety, eating disorders, alcohol abuse and drug abuse. However, the authors acknowledged that the subscale measuring lack of emotional awareness appeared to be potentially problematic as it
did not correlate with three of the other subscales, although all subscales were theoretically associated with emotion dysregulation. The Lack of Emotional Awareness subscale also had a substantially lower correlation with the total DERS scale. The authors suggested that the language of this subscale may be less appropriate developmentally to adolescents. Thus, further research should be undertaken to explore the utility and validity of this subscale. In addition, the DERS has not been used to discriminate between clinical and non-clinical samples. In this study, the clinical variables used to examine construct validity were assessed via a self-report questionnaire. This, the authors recognise, could have introduced additional measurement errors. It would be helpful for future studies to undertake further validation and comparison of factor structure across more diverse adolescent samples.

Nock et al. (2008) developed the Emotion Reactivity Scale (ERS) as a means of addressing the paucity of research in the examination of emotion reactivity. The ERS is a new self-report measure assessing adolescents’ experience of emotion reactivity, in the areas of emotion sensitivity, arousal/intensity of emotion and persistence of emotion. A total of 87 participants aged between 12 and 19 years were used in this study. Exploratory factor analysis revealed that a one-factor solution best explained the data instead of the three factors initially expected and the ERS showed good internal consistency (Cronbach’s $\alpha = .94$). Construct validity was demonstrated through convergent and divergent validity with behavioural inhibition/activation and temperament measures. Criterion validity was also established with associations with specific types of psychopathology and self-injurious thoughts and behaviours (SITB). The authors concluded that their findings indicate that the ERS is a robust unidimensional measure of emotion reactivity.
The limitation of using a small sample size, made up of predominantly females, for factor analysis was acknowledged by Nock et al. (2008). It is also noted here that participants were recruited from the community and local psychiatric clinics for participation in a laboratory based case control study of SITB, but there was no mention of the proportion of participants who were engaging in SITB or who had psychiatric diagnoses. A clearer comparison could have been made between community and clinical samples had this information been provided. Another limitation of the study that the authors failed to address is the process of item generation and selection. It is not known if the items do indeed reflect emotional reactivity in an adolescent’s opinion and if the items are appropriate to an adolescent population.

In summary, it is acknowledged here that researchers have recently paid more attention and developed more adolescent-friendly questionnaires to assess various aspects of emotions. However, few of these measures have been validated cross-culturally. In addition, there remains a lack of measures available for adolescents in the area of emotional processing and reactivity, particularly measures with robust psychometric properties for use with both clinical and non-clinical adolescent populations.

Measuring Fear of Emotion in Adolescents

Although adult literature on fear of fear and fear of emotion has demonstrated the importance of understanding the processes of emotional experience in the development and maintenance of clinical disorders, the same consideration has not been afforded to research with adolescents. This is partly due to a dearth of assessment tools to measure the experience of emotion in adolescents. Despite the recent increase in instruments measuring emotionality in adolescents, research in the
field of emotional processing in adolescents continues to lag behind that of research conducted amongst adults. Most research studies to date looking at fear of emotions and using the ACS to measure this construct have been conducted on adults in Western countries (e.g., Olatunji et al., 2010; Williams et al., 1997; Yen et al., 2002), and indeed, supportive evidence has been found for the psychometric validity and clinical utility of the ACS when used to measure fear of emotion in adults (e.g., Berg et al., 1998; Price et al., 2006; Williams et al., 1997).

The only exceptions to the existing adult-focused research are the studies conducted in recent years by Geddes and her colleagues (Geddes & Dziurawiec, 2007; Geddes, Dziurawiec, & Lee, 2007), whereby the ACS was modified and adapted to suit an adolescent population. This instrument has been named the Modified Affective Control Scale for Adolescents (MACS-A). It has been validated on a Western Australian adolescent population (Geddes & Dziurawiec, 2007) and has shown its clinical utility in discriminating between teenagers who have received a diagnosis in a mental health clinic and teenagers in the community (Geddes et al., 2007). Subsequent unpublished research conducted in 2007 and 2008 at Murdoch University\(^1\) continued to refine this adapted measure to its current 18-item form and found that the 18-item Modified Affective Control Scale for Adolescents-Revised (MACSA-Revised) was valid and reliable in a Western Australian adolescent population.

The fear of emotion construct has yet to be examined in adolescent populations in non-Western societies. Therefore, it is not known whether fear of emotion applies to youths of different cultures. A psychometrically sound instrument that is able to capture the fear of emotion construct adequately in adolescents across

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\(^1\) Additional information regarding unpublished research in 2007 and 2008 may be obtained from Suzanne Dziurawiec at School of Psychology, Murdoch University.
cultures will allow for a more in-depth examination of how emotional processes and emotional dysfunction may lead to psychopathology in adolescents. Furthermore, having such a cross-culturally valid measure will allow for research to examine if similar findings to that of Geddes et al. (2007) may be found in non-Western societies, whereby fear of emotion is related to maladaptive mental health outcomes in adolescents.

However, prior to the development of such measures, there is a need for a greater appreciation of the characteristics of adolescents in both Western and non-Western societies. Some of these similarities and differences in youths across cultures will be discussed next.

Youth Across Cultures

In considering how culture may affect the period of one’s adolescence, unsurprisingly it has been found that there are many differences in how adolescents across cultures spend their time on different activities (Larson & Verma, 1999; Lee & Larson, 2000). Cultural and societal norms dictate the varying amounts of time spent on different activities. For example, in accordance with Confucian values of filial piety, obedience, diligence and high expectation of self, Asian societies appear to place emphasis on children spending time on schoolwork and succeeding academically (Ang & Huan, 2006; Larson & Verma, 1999). Moreover, given that most Asian societies are collectivistic in nature, doing well academically fulfils the collectivistic goal of meeting parental and societal expectations.

Larson and Verma (1999) reviewed studies on time spent by children and adolescents around the world and found that amongst post-industrial schooled populations, much more time is spent on schoolwork among adolescents in East Asia than in the United States or Europe. The reverse appears to be true for leisure,
whereby it was found that adolescents in Western cultures accorded more time to leisure activities than adolescents in East Asia (Larson & Verma, 1999). Similarly, Lee and Larson (2000) found that Korean 12th graders reported spending more than twice the time completing schoolwork compared to their American counterparts, while the American 12th graders spent thrice as much time socialising and almost twice as much time in leisure activities compared to the Korean 12th graders. In addition, the Korean adolescents reported more negative affect associated with classwork and homework.

Although the transition into adulthood involves many similar social changes for adolescents around the world, it appears that culturally determined time spent on different activities, along with other culturally influenced emotional development processes, all affect the experience of emotions in adolescents of different cultures. Similarly, as with emotional experiences, adolescents across the world face similar mental and emotional health problems, but with different prevalence rates across cultures (e.g., Gau, Chong, Chen, & Cheng, 2005; Ravens-Sieberer et al., 2008; Sawyer, Miller-Lewis, & Clark, 2007).

Ollendick, Yang, King, Dong and Akande (1996) noted in their literature review that although levels of fear, anxiety and depression appeared to be similar across children and adolescents in America, Australia, Great Britain and China, the patterns and expression of fears differed between the Chinese students and their Western counterparts. Youth in Western countries demonstrated decreases in fear associated with increasing age but Chinese children between 11 and 13 years reported a higher level of fear, especially social-evaluative fears, than either younger (7—10-years-olds) or older (14—17-years-old) children. Ollendick and his colleagues suggested that these differences were attributed to culturally specific factors that came
into play at different developmental stages of the young person’s life. Specifically, Chinese students face immense pressure to perform academically during their middle school years and this may explain the reason for the cultural difference in age-related findings (Ollendick et al., 1996).

Research has further shown that many adolescents who are emotionally distressed do not seek help from mental health professionals (Essau, 2005; Power, Eiraldi, Clarke, Mazzuca & Krain, 2005; Sawyer et al., 2007). It is highly plausible that Asian adolescents are even less likely to do so, given that past research has shown that Asian adults are less likely than Westerners to seek mental health services (Huang & Spurgeon, 2006; Leong & Lau, 2001; Ng, Fones, & Kua, 2003). The reluctance amongst Asians to approach mental health services may be attributed to cultural factors. The collectivistic nature of Asian societies indicates that Asians are more likely to approach in-group members, such as family and friends, as a first choice of action when needing help. Furthermore, help may be sought only when behaviours indicative of mental illness are disruptive to the social group (Leong & Lau, 2001). In addition, the social stigma that has historically been associated with mental disorders is more prevalent in Asian communities, as it comes along with feelings of shame and “loss of face” (Leong & Lau, 2001). Therefore, it is highly plausible that a large proportion of Asian adolescents who are emotionally distressed may not in fact be approaching the appropriate clinical services for help.

It is noted that empirically-based psychotherapy treatments have mostly been developed and tested on clinical participants from Western cultures (e.g., Barlow & Craske, 2000; Craske, Brown, & Barlow, 1991; Valderhaug, Larsson, Gunnar Gotestam, & Piacentini, 2007). However, given the difference in help-seeking attitudes and behaviours amongst Asians and Westerners for mental health issues, it is
questioned if Western psychotherapies would be as effective for an average non-Western individual with a mental health issue as for an individual with a more Western background. In particular, not enough is known if theoretical constructs and treatment procedures that have been applied to Western-based adolescent populations are relevant to non-Western adolescent populations. Using Western-based conceptualizations and treatments in non-Western populations may limit the potential of achievement of positive outcomes, if cross-cultural factors have not been considered.

Researchers in Asia have attempted to address cultural factors when looking at psychological constructs like depression (Oei, Goh, & Kwon, 1996; Woo et al., 2004), anxiety (Li, Ang, & Lee, 2008), achievement goal orientation (Chang & Wong, 2008) and academic expectations stress (Ang & Huan, 2006) amongst others. Similarities and differences have been found in youths from Western and Asian cultures. In reviewing the literature on academic stress as experienced by adolescents across cultures, Ang and Huan (2006) found that aspects of academic stress experienced by students of a Western culture were similar to those experienced by Asian students, with the exception of stress due to the need to excel academically to meet parental expectations and to avoid the loss of face. Similarly, in the process of creating the Asian Adolescent Depression Scale to better cater to core and culture-specific depression symptom manifestations found in Asian adolescents, Woo et al. (2004) found that the dimensions of Negative Affect and Lack of Motivation were similar to those of Western populations, but additionally found two, possibly culture-specific, factors of Negative Socially Oriented Self-evaluation and Cognitive Inefficiency.
In sum, it appears that the different lifestyles and emotional experiences of youths across different cultures may contribute to distinctive, cultural-specific, dimensions in common psychological constructs. Thus, in order to further understand the construct of fear of emotion, there is a need to ensure that the adapted MACSA-Revised remains robust when used in non-Western populations. A culturally unbiased instrument will allow for widespread applicability, which, in turn, can increase understanding of the fear of emotion construct. It is the aim of the current thesis to contribute to the literature by focusing on assessing the applicability and clinical utility of this Western-developed instrument across adolescent populations, specifically a non-Western population such as Singapore.

Youth in Singapore

Singapore is a small city-state situated off the southern tip of the Malay peninsula with a diverse population of about five million people (Singapore Department of Statistics, 2009). It is considered a collectivistic society (Hofstede, 1980; Hofstede & Hofstede, 2005) and this is unsurprising, given that the majority of Singaporean residents are of an Asian ethnic background (Chinese 74.2%, Malay 13.4% and Indian 9.2%) with a minority (3.2%) being Caucasian or of other races (Singapore Department of Statistics, 2009). Although English has been the predominant language used in school and at the workplace since the independence of Singapore from British colonial rule in 1965, the multicultural and multiracial nature of the country is further reflected in that there are four official languages in Singapore – English, Chinese, Malay and Tamil.

While Singaporean students are from different ethnic backgrounds, the country’s education system holds a bilingual policy (Singapore Department of Statistics, 2009). The English language is the first language of all students and is the
medium of instructions in all schools. At the same time, a compulsory second
language is learnt and this is often the child’s Mother Tongue, which could be Malay,
Chinese or Tamil. This bilingual policy was implemented with the Singapore
government’s view that this enables children to be proficient in English, which is the
“language of commerce, technology and administration” (Singapore Department of
Statistics, 2009, p. 248), as well as in their Mother Tongue, the language of their
cultural heritage (Singapore Department of Statistics, 2009). Thus, the average
Singaporean student is bilingual and in touch, to some degree, with his or her cultural
values and traditions.

The education system in Singapore requires children to attend primary school
from the ages of 6 to 12 years, and take the Primary School Leaving Examination
(PSLE) at the end of 6 years of primary school (Singapore Department of Statistics,
2009). With the PSLE results, students choose a suitable secondary school course and
the majority of students enter into one of four academic streams - Special, Express,
Normal Academic or Normal Technical (Singapore Department of Statistics, 2009;
Goh, 1979). Students in the Special and Express streams typically complete their
secondary school education in four years and take the General Certificate of
Education Ordinary Level (GCE O level) examination at the end of this four years.
Students in the Normal Academic and Normal Technical stream take the General
Certificate of Education Normal Level (GCE N level) examination at the end of four
years and results from this examination determine eligibility to take the GCE O level
examination the following year. Thus, results from the national examinations taken at
the end of Secondary 4 or Secondary 5 determine their post-secondary education at an
institute of technical education, junior college, polytechnic or university (Singapore
Department of Statistics, 2009).
It is often reported in the local media that Singaporean adolescents face immense academic pressures due to high expectations from parents, teachers and society as a whole. Consequently, Singaporean adolescents have been found to experience a large number of school-related problems and anxieties (Ang & Huan, 2006; Ho & Yip, 2003; Isralowitz & Hong, 1990). In their study investigating issues that Singaporean youth face, Isralowitz and Hong (1990) found that secondary school students in Singapore rated “being pressured to keep up with schoolwork” as the top concern they had, followed by “worrying about the future” and “needing help with schoolwork”. Similarly, in a more recent national youth survey, it was found that 56% of schooling youths found studies to be the major contribution to stress and 45% of Singaporean youths reported feeling sad when they did badly in school (Ho & Yip, 2003). In addition, they ranked examination grades as the most important aspect of school life (Ho & Yip, 2003). Additional evidence of school-related stress is revealed in a study of suicidal behaviour among young people below 21 years of age in Singapore (Ho, Hong, & Kua, 1999) which found that school problems accounted for 11% of youths who attempted suicide in Singapore. Thus, it appears that the environmental characteristics and demands during the period of adolescence for a typical Singaporean youth are likely to contribute to increased emotionality and stress, which may lead to undesirable consequences for an adolescent’s emotional and mental health.

Therefore, it was decided that Singaporean adolescents would be an appropriate adolescent population to be used for validation of the MACSA-Revised. Like adolescents of Western cultures, Singaporean adolescents have emotional and behavioural concerns, although these concerns may be specific to the Singapore context. Indeed, given that Singapore is a predominantly Asian society, cultural
differences between Singapore and Western societies remain. In examining the
degree of individualism of a society, Hofstede and Hofstede (2005) ranked 74
countries/regions on an individualism index--an index score calculated from survey
questions that have been empirically found to reflect individualism or collectivism. In
their analyses, Singapore ranked on the 56th to 61st position (together with
Bangladesh, China, Thailand, Vietnam and West Africa), indicating a predominantly
collectivistic culture, in contrast to the United States, which was ranked first,
Australia, which was ranked second and Great Britain, which was ranked third
(Hofstede & Hofstede, 2005). It appears that despite being exposed to Western
influences in areas such as education and media, Singapore remains predominantly
collectivistic with traditional Asian values.

Unsurprisingly, studies have documented differences between Singaporean
youth and their Western counterparts. For example, a study by Wong et al. (2007)
illustrated that undergraduate students in Singapore tended to report less life
satisfaction than those in Australia. In another study by Diener (2000), Singaporean
tertiary students reported less frequent thoughts about life satisfaction and happiness
than Australian or American tertiary students. Diener also found that Singaporean
students placed less importance on life satisfaction but more importance on money
than Australian and American students. Finally, Li, Ang, and Lee (2008) found that
level of anxieties did not differ between Chinese adolescents in China and Singapore.
However, the Singapore Chinese participants reported significantly higher levels of
anxiety compared to the US normative sample (Li et al., 2008). Taken together, these
studies indicate that Singaporean youths, like youths in Western cultures, experience
eotions, such as anxiety and happiness. However, the different environmental and
cultural demands of living in Singapore are culture-specific elicitors of emotions and
appear to contribute to Singaporean youths experiencing these emotions to a different intensity compared to their Western counterparts.

Thus, validating the MACSA-Revised in a group of Singaporean adolescents will increase the cross-cultural utility of the instrument. Using Singaporean adolescents as a comparison population is also ideal, given that English is the medium of instruction in all schools. Therefore, it is unlikely that participants will have any difficulty in understanding the questionnaire, and thus controlling for the possibility of any confounding findings due to language differences.

Summary

Many emotion assessment inventories used with adolescents have been measures that were designed originally for adults and were not modified or validated within adolescent populations (Compas et al., 2001). Developmental factors need to be considered when designing or modifying emotion assessment questionnaires for adolescents to ensure construct validity is not compromised. Although research using adult populations has highlighted the need to appreciate the processes of emotional experience for better understanding in the development and maintenance of clinical disorders, there remains a lack of measures available for adolescents in the area of emotional processing and reactivity. In addition, it has been clearly demonstrated that youth across cultures have different emotional experiences. It is therefore important to continue refining the MACSA-Revised to ensure that it is a psychometrically sound tool that has widespread cross-cultural clinical utility. The adolescent population from Singapore was deemed to be appropriate for the current research because it is an Asian country that has different cultural values from Western countries. Having a valid and reliable, adolescent-friendly emotion measure that can be used across
cultures will facilitate future research looking into specific pathways of emotion
dysregulation to clinical disorders in adolescents.
The fear of emotion in adolescents has received scant attention in psychological literature and this is largely due to the lack of comprehensive assessment instruments looking at this construct in adolescents. Indeed, although it is acknowledged amongst clinicians and researchers that emotion dysregulation, in the form of deficiencies to process and experience emotions, is linked to maladaptive psychological outcomes (Cole et al., 1994; Gratz & Roemer, 2004; Hayes et al., 1996; McManus & Waller, 1995), development of comprehensive tools measuring emotional reactivity in adolescents remains a neglected area. Without suitable instruments that can assess various components of emotion dysregulation, progress in achieving insight into the pathways to psychopathology amongst adolescents will be slow.

Prior to the work conducted by Geddes and her colleagues where the MACS-A was validated with adolescents (Geddes & Dziurawiec, 2007; Geddes et al., 2007), there was no instrument measuring the fear of emotion in adolescents. Indeed, assessments of psychological constructs in adolescents often use psychological measures that have been created for adults without modifications or validation with adolescents (Compas et al., 2001).

Cognisant of developmental factors to be considered when assessing fear of emotion in adolescents, Geddes and Dziurawiec (2007) adapted and modified the adult ACS to suit an adolescent population. To this end, the 40-item MACS-A has been found to be valid and reliable for use with adolescents in Western Australia (Geddes & Dziurawiec, 2007; Geddes et al., 2007), with females reporting higher
scores of fear of depression and anxiety as compared to males (Geddes & Dziurawiec, 2007).

The MACS-A has since been abbreviated to its current form, the 18-item MACSA-Revised, and research at Murdoch University has also shown the MACSA-Revised to be valid and reliable in a Western Australian adolescent population. However, results have yet to be replicated by others and the psychometric properties of the MACSA-Revised have not been established in other adolescent populations outside of Australia. It is questioned if the MACSA-Revised will remain a robust instrument cross-culturally. The present study was thus designed to answer this question.

Furthermore, it is noted that the MACS-A, like the original ACS, looked at the dimensions of Fear of Anxiety, Fear of Depression, Fear of Anger and Fear of Positive Emotions, while research at Murdoch University using factor analysis found the MACSA-Revised to have an interpretable three-factor solution, measuring Fear of Anxiety, Fear of Depression and Anger, and Lack of Control of Anxiety. Given that cultural influences affect the emotional experiences of adolescents, it is of interest in this study to determine not only if there is an interpretable factor solution, but also if a similar factor structure arises when the MACSA-Revised is used in a non-Western adolescent population.

Aims

It is the aim of this study to evaluate the psychometric properties of the MACSA-Revised in a large community sample of school-going Singaporean adolescents, aged between 13 and 18 years. Participants will be recruited from secondary schools across Singapore. Exploratory factor analysis will be employed to achieve the first goal of this study, which is to examine the factor structure and
internal consistency of the MACSA-Revised. The construct validity of the MACSA-Revised will also be examined via correlations with three other existing emotion measures of depression, anxiety and anger respectively, as higher scores on the emotion measures of depression, anxiety and anger indicate emotion dysregulation.

In addition, given that a number of studies have shown that emotionality and emotion regulation differ between genders and changes have been evidenced from pre to late adolescence (e.g., Harter & Whitesell, 1996; Larson & Ham, 1993; Larson et al., 2002; Rosenblum & Lewis, 2006; Silk et al., 2003), supplementary analyses will be conducted to examine if there are gender or academic year-level differences in responses on the MACSA-Revised.

**Method**

**Participants**

Permission was sought and obtained from the Ministry of Education (MOE) in Singapore to conduct this study (reference: RQ29-0906). Appropriate ethics approval (reference: 2009/108) from the Murdoch University Human Research Ethics Committee was also obtained for this study.

To obtain as close an approximate of a representative sampling of the youths in Singapore, schools were approached according to their geographical categorisations by the MOE. Schools across Singapore are divided into the North, South, East and West zones. Within each zone, schools are further divided into seven clusters (e.g., North1, North2, North3). Schools were thus approached systematically via telephone calls and follow-up emails according to clusters across zones (e.g., North1, South1, East1, West1) until the desired number of participants required for this study was achieved. Of the 124 schools approached, six schools eventually participated in this study. Three schools were from the East zone, two from the West zone and one from
the South zone. Of the six schools, four were government co-educational schools, and the other two were single-sexed schools.

Participants in this study consisted of 608 secondary school students, aged between 12 and 18 years. Thirteen participants were excluded from the final sample due to completion of invalid questionnaires. Questionnaires were considered invalid if less than 50 percent of items were completed or if there were obvious responses patterns. Of the remaining 595 participants, 365 (61.3%) were male and 185 (31.1%) were female, while 45 (7.6%) students did not indicate their gender.

Demographic information required from participants included date of birth, gender, academic year-level and academic stream. Table 1 summarises the demographic profile of the participants. Overall, there were about twice as many males compared to females and over 90% of the participants were in Secondary 1 to 3. In addition, the majority of the participants were from the Normal Academic and Express streams. Although it had been the intention of this study to recruit participants across all five secondary school year levels—Secondary 1, Secondary 2, Secondary 3, Secondary 4 and Secondary 5, and four academic streams—Normal Technical, Normal Academic, Express and Special, this aim could not be achieved. School principals were given the option to decide on their preferred level of involvement, ranging from the number of students to the different year-levels allowed to participate in this study. Schools generally preferred that their Secondary 4 and Secondary 5 students did not participate in this study, due to academic preparations for their GCE N and O level examinations.
### Table 1

**Number of Participants by School, Gender, Year-level and Stream (N = 595)**

<table>
<thead>
<tr>
<th>School</th>
<th>A* (n = 28)</th>
<th>B* (n = 192)</th>
<th>C (n = 19)</th>
<th>D (n = 74)</th>
<th>E (n = 253)</th>
<th>F (n = 29)</th>
<th>Total (N = 595)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>N/A</td>
<td>192</td>
<td>8</td>
<td>40</td>
<td>122</td>
<td>3</td>
<td>365 (61.3%)</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>N/A</td>
<td>11</td>
<td>31</td>
<td>95</td>
<td>20</td>
<td>185 (31.1%)</td>
</tr>
<tr>
<td>Unspecified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>36</td>
<td>6</td>
<td>45 (7.6%)</td>
</tr>
<tr>
<td>Year-level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary 1</td>
<td>28</td>
<td>68</td>
<td>-</td>
<td>-</td>
<td>84</td>
<td>-</td>
<td>180 (30.3%)</td>
</tr>
<tr>
<td>Secondary 2</td>
<td>-</td>
<td>60</td>
<td>19</td>
<td>39</td>
<td>119</td>
<td>-</td>
<td>237 (39.8%)</td>
</tr>
<tr>
<td>Secondary 3</td>
<td>-</td>
<td>64</td>
<td>-</td>
<td>35</td>
<td>43</td>
<td>-</td>
<td>142 (23.9%)</td>
</tr>
<tr>
<td>Secondary 4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>-</td>
<td>36 (6.1%)</td>
</tr>
<tr>
<td>Secondary 5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Stream</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Technical</td>
<td>28</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>N/A</td>
<td>43 (7.2%)</td>
</tr>
<tr>
<td>Normal Academic</td>
<td>-</td>
<td>92</td>
<td>19</td>
<td>35</td>
<td>99</td>
<td>N/A</td>
<td>245 (41.2%)</td>
</tr>
<tr>
<td>Express</td>
<td>-</td>
<td>95</td>
<td>-</td>
<td>39</td>
<td>139</td>
<td>5</td>
<td>278 (46.7%)</td>
</tr>
<tr>
<td>Special</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>23</td>
<td>23 (3.9%)</td>
</tr>
<tr>
<td>Unspecified</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6 (1.0%)</td>
</tr>
</tbody>
</table>

*Note.* Percentage of total sample contained within parentheses. N/A = not applicable as group does not exist in that school; - = school did not allow students of that group to participate.

*All girls school. *All boys school.
Fear of Emotion in Adolescents

Materials

For the purposes of data collection, all tests used in this study were put together in a questionnaire package named the Adolescent Emotions Survey. This allowed for maintenance of face validity and comprehensibility of the purpose of the questionnaires for the target adolescent group. The questionnaire package included the Modified Affective Control Scale for Adolescents-Revised, the Center for Epidemiological Studies Depression Scale for Children (Weissman, Orvaschel, & Padian, 1980), the Spence Children’s Anxiety Scale (Spence, 1998) and the Anger subscale of the Aggression Questionnaire (Buss & Perry, 1992). The questionnaires were named “Adolescent Emotions Survey (1)”, “Adolescent Emotions Survey (2)”, “Adolescent Emotions Survey (3)” and “Adolescent Emotions Survey (4)” respectively in the questionnaire package (see Appendix A). All questionnaires were administered in English, which is the main language of instruction for all schools in Singapore.

Modified Affective Control Scale for Adolescents-Revised (MACSA-Revised). The Modified Affective Control Scale for Adolescents-Revised is a revised and shorter version of the Modified Affective Control Scale for Adolescents (MACS-A; Geddes & Dziurawiec, 2007). Geddes and Dziurawiec (2007) adapted the Affective Control Scale (ACS) originally developed by Williams et al. (1997) to create the MACS-A for youths aged 13 to 17 years. In the process of adaptation of the ACS to suit an adolescent population, one item was removed due to sexual content deemed inappropriate for adolescents. In addition, based on consultation with clinicians working in a child and adolescent mental health clinic in Western Australia, ambiguous terminology was reworded and phrases from several items were simplified and shortened. Consistent with the ACS, the MACS-A gives the total Fear of
Emotion score, which includes the four subscale scores measuring fear of anxiety, fear of depression, fear of anger and fear of positive emotion. The MACS-A was found to be valid and reliable in both non-clinical and clinical adolescent samples in Western Australia (Geddes & Dziurawiec, 2007; Geddes et al., 2007). It is noted here that for the purposes of the current study, the MACS-A was piloted on five Singaporean teenagers, aged between 12 and 16 years, to determine the usability of such an instrument on Singaporeans. The five teenagers reported no difficulty in understanding the items, although one teenager repeatedly said that the anxiety items did not appear to apply to younger teens.

The MACS-A has since been further refined to its current form—the 18-item MACSA-Revised. Statistical analyses by Geddes et al. (2007) had revealed that although the total Fear of Emotion scale and the Fear of Depression, Fear of Anxiety and Fear of Anger subscales were able discriminate between clinical and non-clinical samples, the Fear of Positive Emotion subscale did not. Hence, items from this subscale were discarded leaving 22 items. Unpublished research using factor analysis conducted in 2007 at Murdoch University found factor loadings on 3 factors and reduced the 22 items to the eventual 18 items, as items with poor factor loadings or high cross-loadings with other factors were discarded. In addition, subsequent unpublished research conducted in 2007 and 2008 at Murdoch University has found the MACSA-Revised to be valid and reliable in a Western Australian adolescent population.

Like the MACS-A, items 2, 6, 9 and 16 of the MACSA-Revised are reverse scored. Responses are rated on a 7-point Likert scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree), with a neutral midpoint 4 (neutral). The overall
scale score is computed as the mean of all responses, with a higher mean score indicating a stronger fear of emotion.

Center for Epidemiological Studies Depression Scale for Children (CES-DC). Developed by Weissman et al. (1980), the CES-DC is a 20-item self-report depression inventory for youths, aged between 6 and 17 years of age, with possible scores ranging from 0 to 60. All items are scored on 4-point Likert scale in relation to their incidence during the past week (0 = not at all, 1 = a little, 2 = some, 3 = a lot). Reverse scoring is applied to items 4, 8, 12 and 16. Higher scores indicate increasing levels of depression. The developers of the CES-DC have suggested that a cut-off score of 15 is suggestive of depressive symptoms (Weissman et al., 1980). The CES-DC has been shown to have good psychometric properties for adolescents (Feindrich, Weissman, & Warner, 1990). In the present sample, the Cronbach’s alpha coefficient for the CES-DC was found to be .87, with a total score mean of 20.26 and standard deviation of 9.97.

Spence Children’s Anxiety Scale (SCAS). The SCAS is a 44-item self-report instrument, originally developed to examine anxiety symptoms in children aged 8 to 12 years (Spence, 1998). It has since been shown to have good reliability and validity in adolescents up to 19-years-old (Muris, Schmidt, & Merckelbach, 2000; Spence, Barrett, & Turner, 2003). In the current study, this scale had a Cronbach’s alpha of .90, with a total score mean of 28.16 and standard deviation of 14.26. The SCAS has 38 items assessing specific anxiety symptoms relating to six subscales, namely social phobia, separation anxiety, panic attack/agoraphobia, obsessive-compulsive disorder, generalized anxiety and physical injury fears. The remaining six items are positive filler items that serve to reduce negative response bias. Participants are asked to report the frequency with which they experience each item on a 4-point
scale (0 = never, 1 = sometimes, 2 = often, 3 = always). A total SCAS score is obtained by summing the 38 anxiety-related items and higher scores reflect greater anxiety symptoms. Responses to the filler items are ignored in the scoring process.

Anger scale of the Aggression Questionnaire (Anger AQ). The Anger scale of the Aggression Questionnaire (Buss & Perry, 1992) was used to measure the intensity of the emotional experience of anger. Reliability and validity of the Aggression Questionnaire and its anger scale has been reported when used with adolescents in different countries (Santisteban, Alvarado, & Recio, 2007; Sukhodolsky & Ruchkin, 2004). To better suit the adolescent population in this study, subtle language changes were made to the original Anger scale of the Aggression Questionnaire, which had been developed on university undergraduate students. The word “characteristic” on the rating scale was replaced with “like” while item 3 was modified to include an explanation of the term “powder keg”. Hence the revised item 3 was: “I sometimes feel like a powder keg (i.e. a container filled with gunpowder) ready to explode.” The scale consisted of seven items scored on a 5-point Likert scale (1 = extremely unlike me, 2 = unlike me, 3 = neither like or unlike me, 4 = like me, 5 = extremely like me). Reverse scoring is applied to item 4, which is positively worded. Total score of the seven items can range from 7 to 35, with a higher score corresponding to greater levels of anger. In this study, the Cronbach alpha of the scale was .74, with a total score mean of 18.9 and standard deviation of 5.27.

Procedure

Schools were given the option of having a member of staff or the investigator administer the survey to students. Administration procedure was standardised with an
“Introduction for Survey Distribution” sheet (see Appendix B) that provided clear instructions on administering the Adolescent Emotions Survey questionnaire package.

In all participating schools, the survey was administered to the students in a group setting due to availability of students as a class. A Participant Information Sheet (see Appendix C) that briefly introduced the research was handed out to all students. Students were informed, both in the information sheet and verbally during the introduction to the survey, about the voluntary and confidential nature of their participation in the study. They were assured that they could decide to withdraw from the study at anytime without any prejudice or discrimination to themselves, their family or their school.

Students were then asked to sign the consent form attached to the information sheet if they were agreeable to participating in the study. Parental consent was not obtained as the schools that had permitted data collection had explicit school policies that did not require parental consent for students to fill in surveys for research purposes. Questionnaires were then handed out to students who had signed and returned the consent forms. Students were encouraged to keep the information sheet for future reference. Before they started on the survey, students were reminded to fill in the required demographic information. They were told to read each item carefully and circle the most appropriate and immediate response. They were also reminded not to discuss their answers with their classmates. Students were told to raise their hands at any time should they have any queries about the survey and a teacher or the research investigator would attend to them. Participants were requested to place their surveys face down on the desk upon completion and to wait in their seats for the surveys to be collected.
Students were reminded at the end of the session that they could look up the results of the study in December 2010 on the website link found in the information sheet. Administering of the surveys took about 30 to 45 minutes per session.

Results

Data Coding and Entry

Data was entered into Statistical Package for Social Sciences (SPSS) version 16.0 for the Macintosh. At point of data entry, each completed survey was assigned a unique form identification number and labelled on the top right-hand corner. Responses to the 89 items in the questionnaire package were entered along with additional variables included for school, form identification number, date of birth, gender, year-level and academic stream.

Data Screening Prior to Analysis

Data for Study 1 was collected between July 2009 and November 2009. Prior to data analysis, a crosscheck of each entry in the dataset with its corresponding survey was conducted. Relevant corrections to inaccurate data entry were made. In addition, examination of the descriptive statistics of the items was carried out using SPSS FREQUENCIES to ensure accuracy of data entry. Subsequently, reverse-worded items were recoded and filler items were deleted.

As missing item data were detected in several cases where the survey was not fully completed by the participants, an analysis of missing values was conducted using SPSS MVA. Missing values were almost negligible on all items of the 89-item questionnaire package given to participants. Of the 89 items in the questionnaire package, only two items had more than 2% of responses missing, with one of them having 17 out of 595 (2.9%) participants not responding to the question and the other having 13 out of 595 (2.2%) participants not responding. All other items with
missing responses had less than 2% of responses missing. In addition, there was no observable response pattern in the missing item data. Given that missing data was minimal and random, it was decided that missing values would be dealt with using pairwise case exclusion in further analysis of the data set, unless otherwise stated.

**Preliminary Analysis of the MACSA-Revised**

Item response. The dataset was checked for outliers, normality and linearity. The response distributions of all MACSA-Revised items were examined. The dataset was checked for outliers by running box plots. Given the large sample size in this study, the presence of a number of outliers was not unexpected (Pedhazur, 1982), as it was likely that there would be participants who were more willing than others to endorse extreme scores on certain items in this questionnaire. These participants were not large in number (n = 31) and were retained for subsequent analyses. However, it is noted that these responses fell only on items 2, 6 and 9, which may be indicative of the nature of these items, and may affect how they contribute to the eventual factor structure of the questionnaire.

A statistical check revealed that skewness and kurtosis were present for a number of items, but this was again expected as standard errors for both skewness and kurtosis tend to decrease with larger N (Tabachnick & Fidell, 2007). The shapes of the frequency histograms were visually examined instead (see Appendix D). The positive skewness in item 7 was the only concern amongst the 18 items. This could possibly be due to the content of the item—“I am afraid I might try to hurt myself if I become too depressed.” It is expected that most people will not endorse this item emphatically. However, the skewness of this item is unlikely to affect the overall current analysis, as this is not a norm-referenced test and investigation is still in its initial phase. None of the items appeared excessively kurtotic. Thus, no deletions of
items or transformations were performed. With 18 items, examination of all pairwise scatterplots to check for linearity was impractical, therefore a random check on a number of plots were run. Amongst the scatterplots examined, none of the scatterplots showed departure from linearity. Hence, all items were included in factor analysis. Table 2 shows the descriptives of all items.

Table 2

MACSA-Revised Item Descriptives ($N = 595$)

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>Missing</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>25th Percentile</th>
<th>50th Percentile</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>595</td>
<td>0</td>
<td>3.82</td>
<td>1.51</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>592</td>
<td>3</td>
<td>3.37</td>
<td>1.28</td>
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<td>3</td>
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<tr>
<td>3</td>
<td>578</td>
<td>17</td>
<td>4.17</td>
<td>1.62</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>588</td>
<td>7</td>
<td>3.30</td>
<td>1.73</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>582</td>
<td>13</td>
<td>2.85</td>
<td>1.51</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>590</td>
<td>5</td>
<td>3.49</td>
<td>1.47</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>590</td>
<td>5</td>
<td>2.84</td>
<td>1.72</td>
<td>6</td>
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<td>4</td>
<td>3.20</td>
<td>1.48</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>9</td>
<td>591</td>
<td>4</td>
<td>3.38</td>
<td>1.31</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>10</td>
<td>593</td>
<td>2</td>
<td>3.33</td>
<td>1.50</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>591</td>
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<td>3.57</td>
<td>1.54</td>
<td>6</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>12</td>
<td>586</td>
<td>9</td>
<td>3.15</td>
<td>1.39</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>590</td>
<td>5</td>
<td>3.23</td>
<td>1.57</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>589</td>
<td>6</td>
<td>3.51</td>
<td>1.68</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>590</td>
<td>5</td>
<td>3.21</td>
<td>1.71</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>594</td>
<td>1</td>
<td>3.11</td>
<td>1.54</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>593</td>
<td>2</td>
<td>4.08</td>
<td>1.63</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>18</td>
<td>595</td>
<td>0</td>
<td>3.53</td>
<td>1.63</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Principal Components Analysis

The first goal of this study was to examine the factor structure of the MACSA-Revised using Principal Component Analysis (PCA). An exploratory factor analysis was used rather than a confirmatory factor analysis given that investigation of this instrument is still in its initial phase. As it has not been tested on any population other than the Western Australian adolescent population, an exploratory analysis will allow
for flexibility to consider a model that best fits the data. PCA was employed to analyse both the shared and unique variance for each observed variable to ensure that maximum variance was extracted from the data set. As suggested by Comrey and Lee (1992), the sample size of 595 participants was a good size for factor analysis. Tests of assumptions indicated that the data were appropriate for factor analysis. The KMO (Kaiser-Meyer-Olkin measure of sampling adequacy) was .89, and the Bartlett's test of sphericity was significant, $\chi^2 (153) = 2822, p < .001$. The results of these two tests suggest that there are sufficient numbers of significant correlations among the items to justify undertaking a factor analysis (Pett, Lackey, & Sullivan, 2003).

It has often been said that there is no easy solution to the task of determining the number of factors in factor analysis (e.g., Pett et al., 2003; Tabachnick & Fidell, 2007). Thus, to achieve the main aim of obtaining a parsimonious solution with interpretable factors, four criteria, as recommended by Pett and colleagues (2003), were used to determine the number of factors: the Kaiser eigenone criterion, the scree test, the interpretability of the factor solutions and the amount of variance explained by the factors. An initial PCA was performed on all 18 items of the MACSA-Revised and with the multiple criteria in mind, it was then decided that three separate PCA runs with varimax rotation, specifying three, four and five factors, would be performed for a better understanding of the various factor solutions. Although oblique rotations were also examined, the results were more difficult to interpret. Given that rotation is used to improve the interpretability and scientific utility of the solution, together with the view that investigation of the MACSA-Revised is still in the preliminary phase, it was decided that varimax rotation was an acceptable rotation technique to use at this stage.
Using the Kaiser eigenone criterion, four factors emerged, accounting for 52.97% of the variance, with the first factor accounting for 30.16% of the total variance, the second factor accounting for another 11.07% of the total variance, the third factor explaining an additional 6.04% of the total variance and the fourth factor accounting for another 5.71% of the total variance. Tabachnick and Fidell (2007) suggested the rule of thumb of interpreting only variables with loadings of .32, as the greater the loading, the more the variable is a pure measure of the factor. Thus, factor loadings of less than .40 were suppressed in the analysis. Communalities of the variables ranged between .41 and .66. Following rotation, all but one item loaded cleanly on the four factors. Item 13 cross-loaded on Factor 1 and Factor 3. The rotated factor loadings for the four-factor solution are presented in Table 3.
Table 3

MACSA-Revised Factor Loadings for Four-Factor Solution with PCA Extraction and Varimax Rotation (N = 595)

<table>
<thead>
<tr>
<th>Item</th>
<th>Original subscale</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I am afraid I could go into a depression that would wipe me out.</td>
<td>Fear of Depression</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When I get nervous, I think I am going to go crazy.</td>
<td>Fear of Anxiety</td>
<td>.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I am afraid I might try to hurt myself if I become too depressed.</td>
<td>Fear of Depression</td>
<td>.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It scares me when I am nervous.</td>
<td>Fear of Anxiety</td>
<td>.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When I start feeling “down”, I think I might let the sadness go too far.</td>
<td>Fear of Depression</td>
<td>.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Once I get nervous, I think that my feelings might get out of hand.</td>
<td>Fear of Anxiety</td>
<td>.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I get really unhappy, I worry that I will stay that way.</td>
<td>Fear of Depression</td>
<td>.53</td>
<td>.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Depression is scary to me – I am afraid that I could get depressed and never recover.</td>
<td>Fear of Depression</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel comfortable that I can control how anxious I am feeling.</td>
<td>Fear of Anxiety</td>
<td>.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I am able to stop myself from becoming overly anxious.</td>
<td>Fear of Anxiety</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Being nervous isn’t much fun, but I can handle it.</td>
<td>Fear of Anxiety</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I don’t really mind feeling nervous; I know it will go away.</td>
<td>Fear of Anxiety</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am afraid that I will talk nonsense or talk funny when I am nervous.</td>
<td>Fear of Anxiety</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I am afraid that letting myself feel really angry about something could cause me to totally lose it.</td>
<td>Fear of Anger</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. When I am nervous, I am afraid I will act stupid.</td>
<td>Fear of Anxiety</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I get so upset when I am nervous that I cannot think clearly.</td>
<td>Fear of Anxiety</td>
<td>.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If people were to find out how angry I sometimes feel, the consequences might be pretty bad.</td>
<td>Fear of Anger</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. There is nothing I can do to stop feeling nervous once it has started.</td>
<td>Fear of Anxiety</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A specified three factor PCA analysis with varimax rotation was next conducted, as the scree test had indicated a likely three-factor solution. Variables that loaded less than .40 were also suppressed in this analysis. The three-factor solution explained 47.26% of the total variance and communalities of the variables ranged between .25 and .63. In this analysis, item 3 did not load on any factors and item 13 cross-loaded on Factor 1 and Factor 3. The rotated factor loadings for the three-factor solution are presented below in Table 4.
Table 4

MACSA-Revised Factor Loadings for Three-Factor Solution with PCA Extraction and Varimax Rotation (N = 595)

<table>
<thead>
<tr>
<th>Item</th>
<th>Original subscale</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I get so upset when I am nervous that I cannot think clearly.</td>
<td>Fear of Anxiety</td>
<td>.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I am afraid I could go into a depression that would wipe me out.</td>
<td>Fear of Depression</td>
<td>.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When I get nervous, I think I am going to go crazy.</td>
<td>Fear of Anxiety</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I am afraid I might try to hurt myself if I become too depressed.</td>
<td>Fear of Depression</td>
<td>.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It scares me when I am nervous.</td>
<td>Fear of Anxiety</td>
<td>.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. There is nothing I can do to stop feeling nervous once it has started.</td>
<td>Fear of Anxiety</td>
<td>.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When I start feeling “down”, I think I might let the sadness go too far.</td>
<td>Fear of Depression</td>
<td>.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Once I get nervous, I think that my feelings might get out of hand.</td>
<td>Fear of Anxiety</td>
<td>.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I get really unhappy, I worry that I will stay that way.</td>
<td>Fear of Depression</td>
<td>.51</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>15. Depression is scary to me – I am afraid that I could get depressed and never recover.</td>
<td>Fear of Depression</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel comfortable that I can control how anxious I am feeling.</td>
<td>Fear of Anxiety</td>
<td>.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I am able to stop myself from becoming overly anxious.</td>
<td>Fear of Anxiety</td>
<td>.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Being nervous isn’t much fun, but I can handle it.</td>
<td>Fear of Anxiety</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I don’t really mind feeling nervous; I know it will go away.</td>
<td>Fear of Anxiety</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am afraid that I will talk nonsense or talk funny when I am nervous.</td>
<td>Fear of Anxiety</td>
<td>.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I am afraid that letting myself feel really angry about something could cause me to totally lose it.</td>
<td>Fear of Anger</td>
<td>.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. When I am nervous, I am afraid I will act stupid.</td>
<td>Fear of Anxiety</td>
<td>.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If people were to find out how angry I sometimes feel, the consequences might be pretty bad.</td>
<td>Fear of Anger</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A specified five factor PCA analysis with varimax rotation was next conducted as examination of the total variance explained by the factors revealed that the fifth factor had an eigenvalue of 0.94 and added an additional 5.22% to the total variance explained. The first factor had accounted for 30.16% of the total variance, the second factor another 11.07%, the third another 6.04% and the fourth factor another 5.71% of the total variance. Together with the final fifth factor, the five-factor solution explained 58.19% of the total variance.

Factor loadings of less than .40 were again suppressed in this analysis. Communalities of the variables ranged between .45 and .77. All but two items loaded cleanly on the five factors in this analysis. Item 4 cross-loaded on Factor 1 and Factor 3, with a higher loading on Factor 1, while item 17 had similar loadings on Factor 1 and Factor 5. The rotated factor loadings for the five-factor solution are presented below in Table 5.
### Table 5

**MACSA-Revised Factor Loadings for Five-Factor Solution with PCA Extraction and Varimax Rotation (N = 595)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original subscale</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I am afraid I could go into a depression that would wipe me out.</td>
<td>Fear of Depression</td>
<td>.65</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I am afraid I might try to hurt myself if I become too depressed.</td>
<td>Fear of Depression</td>
<td></td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When I start feeling “down”, I think I might let the sadness go too far.</td>
<td>Fear of Depression</td>
<td></td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Once I get nervous, I think that my feelings might get out of hand.</td>
<td>Fear of Anxiety</td>
<td></td>
<td>.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I get really unhappy, I worry that I will stay that way.</td>
<td>Fear of Depression</td>
<td></td>
<td>.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Depression is scary to me – I am afraid that I could get depressed and never recover.</td>
<td>Fear of Depression</td>
<td></td>
<td>.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I am afraid that letting myself feel really angry about something could cause me to totally lose it.</td>
<td>Fear of Anger</td>
<td>.43</td>
<td></td>
<td>.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel comfortable that I can control how anxious I am feeling.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I am able to stop myself from becoming overly anxious.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Being nervous isn’t much fun, but I can handle it.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I don’t really mind feeling nervous; I know it will go away.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I get so upset when I am nervous that I cannot think clearly.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When I get nervous, I think I am going to go crazy.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It scares me when I am nervous.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. There is nothing I can do to stop feeling nervous once it has started.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td>.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am afraid that I will talk nonsense or talk funny when I am nervous.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td></td>
<td>.76</td>
<td></td>
</tr>
<tr>
<td>18. When I am nervous, I am afraid I will act stupid.</td>
<td>Fear of Anxiety</td>
<td></td>
<td></td>
<td></td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>3. If people were to find out how angry I sometimes feel, the consequences might be pretty bad.</td>
<td>Fear of Anger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.85</td>
</tr>
</tbody>
</table>
Pett and colleagues (2003) stated that "the ultimate criteria for determining the number of factors are factor interpretability and usefulness both during the initial extraction procedures and after the factors have been rotated to achieve more clarity" (p. 125). Thus, a decision was made on five factors because the five-factor solution explained a greater amount of variability (58.18%) than the four-factor solution (52.97%) or the three-factor solution (47.26%). In the five-factor solution, 15 of the 18 items had loadings in excess of .63 and .55, which Comrey and Lee (1992) suggested were “very good” and “good” respectively. Furthermore, this five-factor model appeared to be working well for all 18 items given that the communalities of the variables were in an acceptable range (between .45 and .77), indicating that the variables are related to each other and contribute to the interpretation of the factors. Ultimately, the five-factor solution produced factors that were more interpretable than the four-factor or the three-factor solutions. The five factors comprising the MACSA-Revised reflect the multifaceted nature of the fear of emotion construct, which corresponds with the original suggestion that interrelated emotions such as sadness, anger, anxiety and positive emotions make up the fear of emotion construct (Williams et al., 1997). However, unlike the initial hypothesis by Williams et al. (1997), the factor analysis on data from the Singaporean adolescent sample revealed that the items did not merely contribute to fear of anxiety, fear of depression and fear of anger. Instead, the items contributed to five more complex underlying factors that made up fear of emotion.

Factors

**Factor 1 “Fear of No Recovery”**. It was decided that items 4, 7, 11, 12, 13, 15 would make up Factor 1. Although item 4 had a cross-loading on two factors, it was included in Factor 1 as it has a much higher loading on Factor 1 than Factor 3.
The other item in Factor 1 with a cross-loading, item 17, was left out as it contributed better to the interpretation of factor 5. Factor 1 can be labeled “Fear of No Recovery” as this factor is made up of items that reflect a tone of helplessness with little hope of getting better.

**Factor 2 “Lack of Control of Anxiety”**. Factor 2 includes 4 items (items 2, 6, 9 and 16) and can be labeled “Lack of Control of Anxiety”. Items in this factor were worded such that they indicated an ability to accept and handle feelings of anxiety. When these items were appropriately reverse-scored for the purpose of analyses, this factor reflects a sense of lack of control to handle feelings of anxiety.

**Factor 3 “Lack of Clarity”**. Factor 3 consists of 4 items (items 1, 5, 8 and 10) and can be named “Lack of Clarity”. Here, the items reflect a fear of not being able to think and problem solve when one is anxious.

**Factor 4 “Fear of Embarrassment”**. Factor 4 can be labeled “Fear of Embarrassment” and is composed of two highly loaded items (items 14 and 18) that reflect a fear of behaving in an embarrassing manner, such as talking nonsense or doing something stupid when anxious.

**Factor 5 “Fear of Anger”**. Finally, Factor 5 can be named “Fear of Anger” and is made up of item 3 and the cross-loaded item 17, which was included in this factor based on conceptual strength. These items reflect a fear of consequences to oneself when one is really angry.

Factor scores were next calculated for the five factors by summing the scores of the items in each factor and dividing that by the number of items to get a mean score. This technique, though simple, is adequate for analysis, given that standard deviations of the items did not vary too much and had a narrow range from 1.28 to 1.73 (Tabachnick & Fidell, 2007). Of the five factors, the Fear of Anger had the
highest mean score (M = 4.13, SD = 1.33), followed by Fear of Embarrassment (M = 3.52, SD = 1.44), Lack of Control of Anxiety (M = 3.33, SD = .97), Lack of Clarity (M = 3.30, SD = 1.07) and finally Fear of No Recovery (M = 3.22, SE = 1.17). Refer to Table 6 for descriptives of the subscales as well as total Fear of Emotion scale.

Table 6

<table>
<thead>
<tr>
<th>Scale (number of items)</th>
<th>Scale Mean (SD)</th>
<th>Item Mean (SD)</th>
<th>Cronbach’s Alpha</th>
<th>Range of item-total correlations</th>
<th>Range of inter-item correlations</th>
<th>Mean inter-item correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion (18)</td>
<td>61.22 (15.05)</td>
<td>3.40 (0.82)</td>
<td>.86</td>
<td>.08 -.66</td>
<td>-.01 -.52</td>
<td>.243</td>
</tr>
<tr>
<td>Fear of No Recovery (6)</td>
<td>19.29 (6.99)</td>
<td>3.22 (1.17)</td>
<td>.82</td>
<td>.57 -.60</td>
<td>.34 -.52</td>
<td>.43</td>
</tr>
<tr>
<td>Lack of Control of Anxiety (4)</td>
<td>13.40 (3.90)</td>
<td>3.33 (0.97)</td>
<td>.64</td>
<td>.34 -.48</td>
<td>.23 -.40</td>
<td>.31</td>
</tr>
<tr>
<td>Lack of Clarity (4)</td>
<td>13.23 (4.25)</td>
<td>3.30 (1.07)</td>
<td>.68</td>
<td>.43 -.47</td>
<td>.30 -.40</td>
<td>.34</td>
</tr>
<tr>
<td>Fear of Embarrassment (2)</td>
<td>7.04 (2.87)</td>
<td>3.52 (1.44)</td>
<td>.67</td>
<td>.51</td>
<td>.51</td>
<td>.51</td>
</tr>
<tr>
<td>Fear of Anger (2)</td>
<td>8.24 (2.65)</td>
<td>4.13 (1.33)</td>
<td>.49</td>
<td>.32</td>
<td>.32</td>
<td>.32</td>
</tr>
</tbody>
</table>

Reliability

Cronbach’s alpha coefficients were calculated for the total Fear of Emotion scale as well as for each subscale of the proposed 5-factor solution. Results indicated that the MACSA-Revised had good internal consistency (α = .86). Item-total correlations ranged from .08 to .66. Although there were 5 items (Item 2, 3, 6, 9, 16) that had item-total correlations of less than .30, these items did not appear to pose as a problem, as deletion of any of these items would increase the Cronbach’s alpha coefficient by only .006 to 007. Moreover, these items loaded highly on their factors. However, it is noted that items 2, 6, 9 and 16 were the reverse-scored items and were
the items that made up Factor 2, Lack of Control of Anxiety. Amongst the subscales, the Fear of No Recovery subscale had the highest internal consistency of .82. The Lack of Control of Anxiety, Lack of Clarity and Fear of Embarrassment scales had reliabilities between .64 and .67, which were deemed acceptable given the small number of items that made up each subscale. Only the Fear of Anger subscale had a relatively low reliability of .49. This was not unexpected as the scale was made up of only two items, one of which had cross-loaded on another factor. Internal consistencies of each subscale as well as total scale are presented in Table 6.

**Intercorrelations of Subscales**

The intercorrelations of subscales as well as the correlations between the subscales and the total Fear of Emotion scale can be found in Table 7. All but two correlations were significant. The total Fear of Emotion scale was highly correlated with the Fear of No Recovery and Lack of Clarity subscales. This suggests that the total Fear of Emotion score, as well as these two subscales, are reliable indicators of the fear of emotion construct. Amongst the correlations of the five subscales, all but two correlations were significant. The Lack of Control of Anxiety subscale was not significantly correlated to Fear of Embarrassment and neither was it correlated to Fear of Anger. This was not an unexpected finding given that The Lack of Control of Anxiety factor measured items pertaining to anxiety and not embarrassment or anger. It is also noted that amongst the subscales, the Lack of Control of Anxiety subscale had the lowest correlations with the other subscales.
Table 7

Correlations Between Mean of Subscale and Mean Total Fear of Emotion Scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Fear of No Recovery subscale</th>
<th>Lack of Control of Anxiety subscale</th>
<th>Lack of Clarity subscale</th>
<th>Fear of Embarrassment subscale</th>
<th>Fear of Anger subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion scale</td>
<td>.89***</td>
<td>.45***</td>
<td>.82***</td>
<td>.64***</td>
<td>.54***</td>
</tr>
<tr>
<td>Fear of No Recovery subscale</td>
<td>-</td>
<td>.20***</td>
<td>.65***</td>
<td>.48***</td>
<td>.42***</td>
</tr>
<tr>
<td>Lack of Control of Anxiety subscale</td>
<td>-</td>
<td>-</td>
<td>.30***</td>
<td>.08</td>
<td>-.07</td>
</tr>
<tr>
<td>Lack of Clarity subscale</td>
<td>-</td>
<td>.45***</td>
<td>-</td>
<td></td>
<td>.35***</td>
</tr>
<tr>
<td>Fear of Embarrassment subscale</td>
<td>-</td>
<td>-</td>
<td>.39***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p < .001 level (2-tailed)

Concurrent Validity

To provide preliminary data on the construct validity of the MACSA-Revised, concurrent validity was examined by computing correlations between the suggested five subscales, total Fear of Emotion scale and the three other measures of emotions (i.e., CES-DC, Spence, AngerAQ). Since the MACSA-Revised is based on a conceptualization that having a fear of emotion is related to greater experiences of that emotion, evidence for the construct validity of the measure of fear of emotion would be provided by positive correlations with greater anxiety, depression and anger scores.

As shown in Table 8, all correlations between the total Fear of Emotion score and the mean scores of the other emotion measures were in the expected directions and statistically significant. Each of the five subscales was also significantly
correlated and in the expected direction with the three other measures of emotions, providing evidence of construct validity of the MACSA-Revised.

Table 8

*Correlations of MACSA-Revised and Other Measures of Emotions*

<table>
<thead>
<tr>
<th>Scale</th>
<th>CES-DC</th>
<th>SCAS</th>
<th>AngerAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion scale</td>
<td>.61***</td>
<td>.52***</td>
<td>.45***</td>
</tr>
<tr>
<td>Fear of No Recovery subscale</td>
<td>.54***</td>
<td>.44***</td>
<td>.39***</td>
</tr>
<tr>
<td>Lack of Control of Anxiety subscale</td>
<td>.30***</td>
<td>.18***</td>
<td>.12**</td>
</tr>
<tr>
<td>Lack of Clarity subscale</td>
<td>.49***</td>
<td>.51***</td>
<td>.34***</td>
</tr>
<tr>
<td>Fear of Embarrassment subscale</td>
<td>.36***</td>
<td>.35***</td>
<td>.30***</td>
</tr>
<tr>
<td>Fear of Anger subscale</td>
<td>.31***</td>
<td>.27***</td>
<td>.43***</td>
</tr>
<tr>
<td>CES-DC</td>
<td>-</td>
<td>.56***</td>
<td>.40***</td>
</tr>
<tr>
<td>SCAS</td>
<td>-</td>
<td></td>
<td>.32***</td>
</tr>
</tbody>
</table>

* ***p <.001 level (2-tailed)  
  ** p <.01 level (2 tailed)  

Predictably, the Fear of Anger subscale was most highly correlated with the AngerAQ measure, with significant but lower correlations with the CES-DC and SCAS. This finding was expected, given that anxiety and depression are more similar emotions with many overlapping symptoms as compared to anger. In addition, it is noted that the Fear of Emotion total scale had a slightly higher correlation with the AngerAQ scale than the Fear of Anger subscale did with the AngerAQ scale. This finding implies that perhaps having more items in the Fear of Anger subscale could increase its internal consistency, as it currently is a subscale made up of only two items.
Supplementary Analyses: Gender and Collapsed Year-Level Comparisons

To better understand how Singaporean adolescents responded on the MACSA-Revised, supplementary analyses was conducted to compare gender and collapsed year-level scores. Prior to running the analyses, questionnaires with unspecified gender (n = 45) were removed from the dataset. While all participants had specified their year-level when completing the questionnaire, there were only 36 participants from the Secondary 4 level and no Secondary 5 student participants. Therefore, although it had been the intention to compare individual year-level scores, individual year-level analysis would have been statistically compromised. Hence, participants were collapsed into lower secondary levels (year-levels Secondary 1 and 2) and upper secondary levels (year-levels Secondary 3 and Secondary 4). Analysis was conducted on 550 questionnaires. Table 9 shows the number of participants in each condition. Although all sample sizes in each cell were adequate for analyses, the unequal sample sizes in the four conditions indicated that an unweighted means analysis was required, therefore, a type II sum of squares model was utilised in all subsequent ANOVA analyses (Tabacknick & Fidell, 2007).

Table 9

<table>
<thead>
<tr>
<th></th>
<th>Male (n = 365)</th>
<th>Female (n = 185)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Secondary</td>
<td>251</td>
<td>139</td>
</tr>
<tr>
<td>Upper Secondary</td>
<td>114</td>
<td>46</td>
</tr>
</tbody>
</table>

A series of 2 (Gender) x 2 (Collapsed Year-level) Analysis of Variance (ANOVA) was employed on the total Fear of Emotion scale and each of the five subscales separately to determine if there were interaction effects. Pre-analysis screening of data was conducted to check if assumptions of normality and
homogeneity of variance were met for the subscales and total Fear of Emotion scale. Shapiro-Wilk test results indicated that the normality assumption was violated for a number of groups on various subscales. However, it has been said that the $F$ test is robust to violations of normality, especially in large samples (Gravetter & Wallnau, 2009; Tabachnick & Fidell, 2007). A visual inspection of the histograms (see Appendix E for histograms) did not reveal any extreme departures from normality. In addition, given the current sample size of $n = 550$, the violation of normality assumption was overlooked and no variables were transformed.

The homogeneity of variance assumption was tested with the Levene’s test. Despite the unequal sample sizes, the homogeneity assumption was met for most analyses, except in the analysis of the Lack of Control of Anxiety subscale. On this subscale, the Levene’s test of homogeneity just met significance ($p = .046$). Thus, a more stringent $p$ level of .01 was used when interpreting the ANOVA results for the Lack of Control of Anxiety subscale.

Separate analyses on the total Fear of Emotion scale, as well as the five individual subscales, revealed non-significant Gender x Collapsed Year-Level interaction effects. However, significant main effects ($p < .05$, 2-tailed) for gender and collapsed year-levels were found.

Main Gender Effect

As illustrated in Table 10, main gender effects were found in three of the analyses. A main gender effect was found on the total Fear of Emotion scale with females ($M = 3.53$, $SD = 0.85$) scoring significantly higher on the total Fear of Emotion scale than males ($M = 3.33$, $SD = 0.79$). Similarly, females ($M = 3.45$, $SD = 1.18$) scored significantly higher than males ($M = 3.11$, $SD = 1.13$) on the Fear of No Recovery subscale. The factorial analysis on the Lack of Clarity subscale also
indicated that females ($M = 3.46$, $SD = 1.13$) had a significantly higher Lack of Clarity subscale score than males ($M = 3.23$, $SD = 1.02$). It is further noted that the main effect of gender on the Lack of Control of Anxiety subscale was close to statistical significance.

Table 10

**Gender Main effects**

<table>
<thead>
<tr>
<th></th>
<th>Male $M(SD)$</th>
<th>Female $M(SD)$</th>
<th>$F(1, 546)$</th>
<th>$p$</th>
<th>$\eta^2$</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion scale</td>
<td>3.33 (0.79)</td>
<td>3.53 (0.85)</td>
<td>8.10</td>
<td>.005**</td>
<td>.014</td>
<td>.811</td>
</tr>
<tr>
<td>Fear of No Recovery subscale</td>
<td>3.11 (1.13)</td>
<td>3.45 (1.18)</td>
<td>12.03</td>
<td>.001**</td>
<td>.021</td>
<td>.933</td>
</tr>
<tr>
<td>Lack of Control of Anxiety subscale</td>
<td>3.28 (0.99)</td>
<td>3.44 (0.96)</td>
<td>3.36</td>
<td>.067</td>
<td>.006</td>
<td>.448</td>
</tr>
<tr>
<td>Lack of Clarity subscale</td>
<td>3.23 (1.02)</td>
<td>3.46 (1.13)</td>
<td>6.54</td>
<td>.011*</td>
<td>.012</td>
<td>.723</td>
</tr>
<tr>
<td>Fear of Embarrassment subscale</td>
<td>3.52 (1.48)</td>
<td>3.55 (1.37)</td>
<td>0.09</td>
<td>.769</td>
<td>.000</td>
<td>.060</td>
</tr>
<tr>
<td>Fear of Anger subscale</td>
<td>4.16 (1.35)</td>
<td>4.06 (1.30)</td>
<td>0.52</td>
<td>.473</td>
<td>.000</td>
<td>.111</td>
</tr>
</tbody>
</table>

$**p < .01$ level (2-tailed)

$*p < .05$ level (2-tailed)

These results together indicate that females were generally reporting a greater fear of emotion as compared to males, specifically on the dimensions of having a greater fear of no recovery and believing oneself to lack clarity and problem solving abilities when upset. However, it must be noted that although these results were statistically significant, calculation of effect sizes using $\eta^2$ indicated that these differences produced only small effect sizes. The general convention, as recommended by Cohen (1988), considers effect sizes of $\eta^2 = 0.01$ to be small, $\eta^2 = 0.059$ to be medium and $\eta^2 = 0.138$ to be large.
Main Collapsed Year-Level Effect

As illustrated in Table 11, main year-level effects were found in three of the analyses. The mean reported influence of year-level effects on the total Fear of Emotion scale was marginally significant, with upper secondary school students ($M = 3.50, SD = 0.80$) scoring higher on the total fear of emotion score than lower secondary school students ($M = 3.36, SD = 0.82$). The main effect of year-level on the Fear of No Recovery subscale score also just meet statistical significance. Upper secondary school students ($M = 3.37, SD = 1.14$) scored higher on this subscale score than lower secondary school students ($M = 3.17, SD = 1.16$). In analyzing the influence of year-level effects on the Fear of Anger subscale, upper secondary students ($M = 4.35, SD = 1.21$) were found to have a significantly higher Fear of Anger subscale score than lower secondary students ($M = 4.03, SD = 1.37$). It is noted that the main effect of year-level on the Lack of Clarity subscale, as well as main effect of year-level on the Fear of Embarrassment subscale, were both close to statistical significance.
Table 11

**Collapsed Year-Level Main Effects**

<table>
<thead>
<tr>
<th></th>
<th>Lower Secondary</th>
<th>Upper Secondary</th>
<th>F(1, 546)</th>
<th>( \eta^2 )</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion scale</td>
<td>3.36 (0.82)</td>
<td>3.50 (0.80)</td>
<td>4.32</td>
<td>.038*</td>
<td>.546</td>
</tr>
<tr>
<td>Fear of No Recovery subscale</td>
<td>3.17 (1.16)</td>
<td>3.37 (1.14)</td>
<td>4.39</td>
<td>.037*</td>
<td>.552</td>
</tr>
<tr>
<td>Lack of Control Anxiety subscale</td>
<td>3.36 (1.04)</td>
<td>3.27 (0.84)</td>
<td>0.79</td>
<td>.375</td>
<td>.144</td>
</tr>
<tr>
<td>Lack of Clarity subscale</td>
<td>3.26 (1.05)</td>
<td>3.43 (1.10)</td>
<td>3.66</td>
<td>.056</td>
<td>.480</td>
</tr>
<tr>
<td>Fear of Embarrassment subscale</td>
<td>3.46 (1.48)</td>
<td>3.70 (1.34)</td>
<td>3.28</td>
<td>.071</td>
<td>.440</td>
</tr>
<tr>
<td>Fear of Anger subscale</td>
<td>4.03 (1.37)</td>
<td>4.35 (1.21)</td>
<td>6.26</td>
<td>.013*</td>
<td>.704</td>
</tr>
</tbody>
</table>

*\( p < .05 \) level (2-tailed)

These results together indicate that upper secondary school students were reporting a statistically higher fear of emotion as compared to lower secondary school students. However, like gender effect sizes, the effect sizes of these differences were all small.

**Discussion**

To address the lack of comprehensive measures of emotion dysregulation for adolescents with cross-cultural applicability and with established psychometric properties specific to the adolescent age-group, Study 1 attempted to validate the MACSA-Revised in a group of Singaporean adolescents.

**Factor Structure of MACSA-Revised**

Exploratory factor analysis suggested the data collected from the Singaporean adolescent sample supported the structure of the MACSA-Revised and data was best explained by a five-factor solution. The MACSA-Revised captured the presence of...
Five separate but related factors underlying the Fear of Emotion construct in the Singaporean adolescent sample, including (a) Fear of No Recovery, (b) Lack of Control of Anxiety, (c) Lack of Clarity, (d) Fear of Embarrassment, and (e) Fear of Anger.

The internal consistency for the MACSA-Revised was good, suggesting that it is a reliable scale that can be used with confidence with Singaporean adolescents. However, it is noted that the internal consistencies of the five subscales were varied, with the Fear of No Recovery subscale having good internal consistency of .82 while the Lack of Control of Anxiety, Lack of Clarity and Fear of Embarrassment subscales had acceptable reliabilities. By convention, a lenient cut-off of $\alpha = .60$ is common in exploratory research. Of the five subscales, the Fear of Anger subscale had the lowest reliability of $\alpha = .49$.

The low reliability of the Fear of Anger subscale was not unexpected as the scale was made up of only two items. Nevertheless, the Fear of Anger subscale, as compared to the other subscales, had the highest correlation with the AngerAQ measure. It is further noted that the Fear of Emotion total scale had a slightly higher correlation with the AngerAQ scale than did the Fear of Anger subscale alone with the AngerAQ measure. This finding implies that the two items in the Fear of Anger subscale are indeed items that capture the anger emotion while being a component of the fear of emotion construct, and having more items in the Fear of Anger subscale would be likely to increase its internal consistency.

Interestingly, the Fear of Embarrassment subscale had an acceptable internal consistency although it was also made up of only two items. In addition, these two items loaded cleanly and had high factor loadings on this subscale. It appears that these two items do indeed capture the essence of Fear of Embarrassment in the
Singaporean adolescent sample. Including more items on this subscale might strengthen the reliability and utility of this scale, but at present, the subscale displays acceptable reliability.

The five factors that emerged in the current study were somewhat different from the four factors that were proposed by Williams et al. (1997) in the construction of the original ACS. Data from the current analyses did not support clearly delineated subscales of Fear of Depression or Fear of Anxiety, although a Fear of Anger subscale did emerge. The current findings are also different from that of the Murdoch University researchers who validated the MACSA-Revised on a Western Australian adolescent sample. In those studies, three factors had emerged and were named Fear of Depression and Anger, Fear of Anxiety and Control of Anxiety. Thus, it appears that the underlying dimensions that comprise fear of emotion for a Singaporean adolescent sample are indeed different from that of a Western sample.

Research has shown an overlap between anxiety and depression symptoms in adolescents (King, Ollendick, & Gullone, 1991; Muris, Schmidt, Merckelbach, & Schouten, 2001) and this overlap may explain to some degree the absence of a clear fear of anxiety or depression factor in the Singaporean sample. It appears that emotions such as anxiety and depression are perceived to be similarly distressing emotions and are feared, possibly because of beliefs about the perceived consequences of experiencing such emotions (e.g., not being able to recover from the experience of a distressing emotion). Furthermore, cross-cultural factors are likely to have influenced these results. This pattern of findings is unsurprising given that emotions hold different meanings in different cultures and are interpreted differently by individuals of different cultures.
Indeed, the Fear of Embarrassment subscale appears to be a culturally unique one. The two items “I am afraid that I will talk nonsense or talk funny when I am nervous.” and “When I am nervous, I am afraid I will act stupid.” clearly implicate a sense of concern that one’s behaviour when nervous may lead to a negative evaluation by others. Certainly, the concern for how one is being evaluated by others is reflected in various explanations of embarrassment in the emotion literature (Keltner & Buswell, 1997; Lewis, 1995; Miller, 2007; Singelis et al., 1999; Singelis & Sharkey, 1995).

Similarly, susceptibility to embarrassment, or embarrassability, is associated with increased attention to how one is viewed by others, as well as a need to belong and be accepted (Miller, 2007; Singelis & Sharkey 1995). The concern with social evaluation results in social norms being heeded more diligently by individuals high in embarrassability (Miller, 1995). Thus, it comes as no surprise that embarrassability differs to varying degrees in different cultures (Singelis et al., 1999; Singelis & Sharkey, 1995). Asians tend to be high self-monitors (Triandis, 1989) and Asian cultures emphasise harmonious relations in groups and public face saving. In fact, shame and loss of face are frequently used as socialisation tools to meet familial and societal obligations and expectations, as well as to reinforce proper behaviour (Yeh & Huang 1996). Asians thus would be hypothesised to be higher on embarrassability as compared to Westerners.

Singelis and his colleagues (Singelis et al., 1999; Singelis & Sharkey 1995) found that an independent self-construal is negatively correlated to embarrassability while an interdependent self-construal is positively correlated to embarrassability. If collectivism is positively correlated to an interdependent sense of self, while individualism is positively correlated to an independent sense of self (Markus &
Kitayama, 1991; Singelis et al., 1999), then the collectivistic culture of Singapore would indicate that Singaporeans are likely to have an interdependent self-construal. It can further be extrapolated that Singaporeans are thus likely to have a heightened sense of embarrassability as compared to Western, individualistic societies. The belief that Singaporeans are higher on embarrassability as compared to Westerners is corroborated by findings that Asian Americans are more susceptible to embarrassment compared to Euro-Americans (Singelis & Sharkey, 1995).

In a culture where embarrassability is heightened, public face-saving is the norm and meeting familial and societal expectations are customary, it does not come as a surprise that data from the Singaporean adolescent sample revealed the presence of a clearly delineated Fear of Embarrassment subscale.

Construct Validity

The convergent validity of the MACSA-Revised was supported by significant correlations between the total Fear of Emotion score and the other measures of anxiety, depression and anger, namely the SCAS, the CES-DC and the AngerAQ. These significant but moderate correlations indicate that the MACSA-Revised does indeed capture items with tones of anxiety, depression and anger but at the same time, it does not merely measure the presence of these emotions.

Further evidence of the construct validity of the MACSA-Revised was demonstrated as all subscales were significantly correlated, and in the expected direction, with the total Fear of Emotion scale as well as with the other three measures of emotion. The Fear of No Recovery subscale had the highest correlation with the total Fear of Emotion scale. This correlation taken together with its high internal consistency indicates that the Fear of No Recovery subscale appears to be a reliable indicator of the fear of emotion construct in this population. It is likely that a large
part of Singaporean adolescents’ fear of emotions stem from having the fear that experiencing distressing emotions like anxiety, anger, depression and embarrassment could be the start of a downwards emotional spiral and recovery is perceived as not possible.

With the exception of the Lack of Control of Anxiety subscale not being significantly correlated with the Fear of Embarrassment and Fear of Anger subscales, all other subscales were significantly correlated. Thus, it appears that the five subscales do indeed capture different but related dimensions of the fear of emotion construct. A lack of clarity in thoughts and the possibility of no recovery are perceived when emotions such as embarrassment and anger are experienced. Similarly, there is a sense of a lack of clarity in thinking and a fear of no recovery associated with the thought of not having control over one’s anxiety. However, fears of embarrassment and anger are not related to the fear of having a lack of control of anxiety.

**Group Differences**

In further exploring the responses of Singaporean adolescents on this measure, it was found that although the total Fear of Emotion scale differentiated between males and females significantly, this difference produced only a small effect size. Similarly, although statistical differences were found for upper secondary and lower secondary students on the total Fear of Emotion scale, small effect sizes accompanied this difference. In looking at the subscales, although significant gender and collapsed year-level effects were found in some subscales, these results only produced small effect sizes as well. Therefore, it can be said that although fear of emotion appears heightened to some degree amongst females and upper secondary students, these differences were not pronounced.
These findings are somewhat surprising given that research has shown that females experience higher levels of negative affect during adolescence (Harter & Whitesell, 1996; Rosenblum & Lewis, 2006; Silk et al., 2003; Stapley & Haviland, 1989). Indeed, a study carried out with Singaporean students aged from 11 to 17 years found that female adolescents reported significantly higher concerns about their emotional well-being and also experienced more negative affect than did the male adolescents in their study (Yeo et al., 2007). Thus, like adolescents of Western cultures, it appears that Singaporean adolescent females are more vulnerable to experiencing emotional distress than Singaporean adolescent males.

However, the lack of pronounced differences between genders in their fear of emotion responses appears to be unique to Singaporean adolescents. Using the 41-item MACS-A, Geddes and Dziurawiec (2007) had found in their study on Western Australian adolescents that females had reported higher fear of depression and anxiety as compared to males. Although the dimensions of the fear of emotion construct had shown up differently in the Singaporean sample, as compared to the Western Australian sample, it nevertheless remains noteworthy that Singaporean adolescent females did not differ much from Singaporean adolescent males on any of the subscales.

In a study that looked at a construct related to the fear of emotion, Rapee and his colleagues (1996) validated the Anxiety Control Questionnaire (ACQ) on an adult sample. In the development of the ACQ, which was designed to measure perceived control over emotional reactions related to anxiety and perceived control over external threats, Rapee et al. (1996) compared the mean scores of males and females on the ACQ. The authors found no significant gender differences on the ACQ in both the anxious sample or the non-clinical, control, sample.
Thus, it appears that results from the current study reflect findings similar to those of Rapee et al. (1996). Although females may experience higher levels of negative affect as compared to males, females’ fear of emotions and perceived control over distressing emotions do not differ from those of males. This may be especially true in the Singaporean culture in which emotions that do not serve to enhance social harmony are equally feared by both males and females.

Furthermore, ANOVA results revealed that the Fear of Embarrassment subscale did not differentiate between gender groups. This is an interesting finding as research in Western societies has shown that the construct closely related to embarrassibility, the fear of negative evaluation, has been found to be higher in females of various ages (La Greca & Lopez, 1998; Miller, 1995; Ridges, Fazey, & Fairclough, 2007; Swoboda, Demal, Krautgartner, & Amering, 2003). The finding that the Fear of Embarrassment subscale did not differentiate between gender groups again reiterates the notion that embarrassibility appears to be prevalent within the Singapore culture and both adolescent males and females fear embarrassment equally.

Similarly, the finding that only small effect sizes accompanied the differences in response between upper secondary and lower secondary students on the MACSA-Revised was somewhat unexpected as literature indicates that the salience of emotion regulatory goals and emotional control may actually increase with age (Carstensen, 1995; Gross, Carstensen, Pasupathi, Tsai, Gottestam, & Hsu, 1997). Furthermore, studies using adolescents have shown that although the prominence of negative affect tends to increase between approximately the ages of 10 to 15 years (Larson & Ham, 1993; Larson & Lampman-Petratis 1989; Larson et al., 2002), this increase in negative affect levels out in late adolescence (Holsen, Kraft, & Vitterso, 2000; Larson et al., 2002). Thus, it would have been expected that upper secondary students in the
current study, who were aged from 15 to 18 years, would have reported a lower fear of emotion, if they, like adolescents examined in previous studies, had lower levels of negative affect and increased emotional control.

Again, cultural influences are likely to explain the current findings. Larson et al. (2002) argued that later adolescence is a more stable period, as compared to early adolescence, to explain their findings of the increased stability in emotionality in later adolescence. This suggestion is not disputed, as a great deal of adaptation is required to deal with the stressors that this transition period brings for the young person who has just entered into adolescence. As the young person moves through early to mid to late adolescence, he or she continues to develop biologically and cognitively, and with the increased capabilities that maturation brings about, learns to handle and manoeuvre through the stressors of daily adolescent life. However, the stressors as experienced by Singaporean adolescents at various ages are likely to be different from those of Western populations.

It is widely acknowledged in the local media and in research conducted with Singaporean youth that academic-related stress is a prevalent experience amongst Singaporean students (Ang & Huan, 2006; Ho & Yip, 2003; Isralowitz & Hong, 1990). Singaporean students face constant reminders to excel academically and doing well in examinations is considered the most important aspect of school life (Ho & Yip, 2003). It is therefore very likely that upper secondary students, who are preparing towards taking the national GCE O level or GCE N level examinations towards the end of their secondary school education, would be experiencing vast amounts of academic stress and pressures imposed upon them to meet not only their own expectations, but also expectations of their parents, teachers and society as a whole.
This is, in fact, consistent with the explanation of findings of the cross-cultural study by Ollendick and his colleagues (1996). Ollendick et al. (1996) found that Australian and American children aged 7—10 years old reported significantly higher levels of fear than 11—13-year-olds and 14—17-year-olds. However, Chinese 11—13 year-olds reported a higher level of fear than either the 7—10 or 14—17 year-olds. Furthermore, systematic decreases with age across all dimensions of fear were found in Australian and American youth. However, for the Chinese students, systematic decreases with age were found in all but one dimension of fear measured. Chinese 11—13-year-olds reported significantly higher levels on the dimension of fear of failure and criticism compared to the 7—10 and 14—17 year olds. In addition, Chinese children and adolescents generally reported higher levels on the fear of failure and criticism than Australian or American youth.

Ollendick et al. (1996) attributed this difference in age patterns of levels of fear to child-rearing and educational practices that place high value on the opinions of others and the need to do well academically. It is believed that Chinese children face immense parent and societal pressure to excel in middle school, or between the ages of 11-13 years old, as academic excellence is related to subsequent admission into “key” high schools and eventually, admission into respected universities (Ollendick et al., 1996).

Similarly, the upper secondary students in the current study are at the period where academic excellence is most emphasised. Results of the national examination taken at the end of one’s secondary school education are deemed to determine one’s post-secondary education which is often perceived to be related to one’s economic future. Thus, although the younger Singaporean adolescent may experience increased negative emotionality associated with transition to adolescence and starting secondary
school, this negative emotionality may not level out as the older Singaporean adolescent also experiences a significant amount of negative emotionality associated with academic pressures. As such, secondary school students of different year-levels may all experience a similar degree of negative emotionality and fear of emotion may not vary across secondary school year-levels. In addition, as with the trend in gender, cultural norms indicate that emotions that do not serve to enhance social harmony may be equally feared by upper secondary and lower secondary students.

Possible Improvements to the MACSA-Revised

In addition to consideration of more items for the Fear of Embarrassment and Fear of Anger subscale, further adjustments to the current MACSA-Revised may increase its psychometric properties. For example, it cannot be denied that in all three separate PCA runs specifying three, four and five factors, the reverse scored items always only loaded on Factor 2 (subsequently named the Lack of Control of Anxiety factor). No other items loaded on this factor. In addition, analysis of this factor revealed that the inter-item and item-total correlations were relatively low and deletion of all items in this factor would have increased the Cronbach alpha of total scale from .855 to .874. Furthermore, although it might have been expected that the Lack of Control of Anxiety subscale would be highly correlated to the Fear of Emotion total scale, results indicated that it had the lowest, albeit still significant, correlation with the Fear of Emotion total scale. It is also recalled that the outliers found in pre-analysis data screening were found only on items 2, 6 and 9, which were three out of the four items of the Lack of Control of Anxiety subscale. These anomalies may be indicative of a problematic subscale. Further research can address this issue by examining the factor structure of the total scale after either adding more
items that reflect a lack of control of anxiety or having reverse-scored items that do not only reflect a lack of control of anxiety.

Limitations of the Study

It is acknowledged that this study has several limitations. Firstly, although attempts were made to ensure that the sample was as diverse and as representative of the Singaporean adolescent population as possible, the eventual sample included only students from six secondary schools. Analysis across a more diverse sample would have allowed for more certainty in saying that the MACSA-Revised is a robust instrument that can be used in Singapore. In addition, there were very few Secondary 4 and Secondary 5 participants. Given the perceived importance of these two academic years in the Singaporean culture, a more detailed analysis across the five year-levels would have given a clearer picture of the fear of emotion concept amongst Singaporean adolescents.

It is also recognised that there were more male participants than female participants in this study, as students from School B, a single-sexed male school, made up over 30% of the sample in Study 1. While this may indicate an underrepresentation of responses from the female participants, the gender profile for participation was outwith the researcher’s control. Future research can give consideration to recruiting more gender-balanced samples, thereby improving the feasibility of establishing if the factor structure is invariant across gender.

In addition, the current sample consisted of only secondary school students aged between 13 and 17 years, with the majority being lower secondary school students. Consequently, responses from older adolescents on the MACSA-Revised may not have been adequately captured. Therefore, it is not known if the current findings can be extrapolated to the older adolescent population.
It is also acknowledged that in addition to running the pilot study on the five Singaporean adolescents, perhaps a more in-depth qualitative approach could have been taken initially to explore whether the fear of emotion construct is one that applies to Singaporean adolescents. Such an approach might possibly have led to a more reliable Fear of Anger scale. It is suggested that, prior to any future revisions of the MACSA-Revised for use in Singapore, a qualitative examination of items be undertaken with Singaporean adolescents to potentially improve the measure’s psychometric properties.

Strengths of the Study

Nevertheless, in spite of the recognised possible improvements that can be made to the instrument, as well as the acknowledged limitations of this study, the current findings demonstrate that the MACSA-Revised is a valid and reliable instrument that can be used in the Singaporean adolescent population. It is not often that cultural considerations are given to validation of an instrument and this study has served its purpose in addressing this point effectively. Furthermore, the large sample size of Singaporean adolescents used in this study for factor analysis increases the confidence with which one can say that the five-factor solution found for the MACSA-Revised in the Singaporean adolescent sample is a robust one.

The brevity of the instrument and the ease of administration in the school setting is a definite strength of the MACSA-Revised as it indicates that this is an instrument that can be quickly administered by school staff to capture symptoms of possible emotion dysregulation at the community level.

Summary

In summary, the MACSA-Revised was found to have acceptable psychometric properties in the current Singaporean adolescent sample. Although the factors that
emerged differed from those of the original ACS developed for adults and the subsequent modified versions for adolescents which were tested in a Western Australian population, the factor structure of the MACSA-Revised remained robust in the current study. Construct validity of the measure was also demonstrated. Nevertheless, further improvements are suggested, given that the development of this instrument is still in its exploratory stage. The MACSA-Revised, however, demonstrates potential to be a valuable tool in assessment of the fear of emotion in adolescents across cultures.
CHAPTER 8
STUDY 2: CLINICAL UTILITY OF THE MACSA-REVISED

Given that the results from Study 1 indicated that the current version of the MACSA-Revised is a robust and stable instrument that can be used in the Singaporean adolescent population, Study 2 sets out to look at the clinical relevance of the MACSA-Revised.

It has been demonstrated in studies using adult populations that the fear of emotion is significantly associated with maladaptive psychological outcomes (e.g., Forbes et al., 2008; Jakupcak et al., 2005, Roemer et al., 2005; Yen et al., 2002). However, this link has not been consistently demonstrated in adolescent samples. Research has shown that the period of adolescence is filled with emotionality that is relatively unique to this developmental stage (e.g., Diener et al., 1985; Larson & Asmussen, 1991; Larson et al., 1980; Larson & Ham, 1993: Larson & Lampman-Petraitis, 1989) and little is known, as yet, if having a significant fear of emotion during this period will also be associated with dysfunctional outcomes.

To date, fear of emotion in adolescents has only been looked at in the study by Geddes et al. (2007), whereby the authors administered the MACS-A to community adolescent participants from secondary schools in Western Australia, as well as clinical adolescent participants attending South Metropolitan Child and Adolescent Mental Health Services (SMCAMHS) clinics in Western Australia. Geddes et al. found the MACS-A to be internally consistent in both the community and clinical sample. In addition, it was also demonstrated that adolescents who had received a diagnosis in a mental health clinic in Western Australia had significantly heightened fear of emotion, as compared to adolescents in the community. This study established that the MACS-A was not only suitable for both clinical and non-clinical adolescent
groups, its clinical utility was further evidenced in its ability to discriminate between clinical and non-clinical adolescent samples. However, this result has yet to be replicated in any other context.

Thus, it is of interest in this study to evaluate the ability of the MACSA-Revised to detect a fear of emotion in adolescents with emotional and mental health issues. Given that it is widely accepted that emotion dysregulation contributes to psychopathology in both children and adults (e.g., Cole et al., 1994; Gross, 1998a, 2002; Southam-Gerow & Kendall, 2002), it can be said that many adolescents who present with emotional and mental health problems have difficulties in emotion regulation. Therefore, criterion-related validity of the MACSA-Revised can be determined if adolescents who have been identified as presenting with mental or emotional health issues report a greater fear of emotion, as measured by the MACSA-Revised, as compared to adolescent controls from the community. In addition, analyses will be included to examine if there are gender or academic year-level differences alongside clinical status differences in responses on the MACSA-Revised.

Aims

The main goal of this study is to examine the clinical utility of the MACSA-Revised. Study 2 will attempt to evaluate the clinical relevance and construct validity of the MASCA-Revised by comparing the scores of adolescents in a clinical sample with adolescents from a community sample. Adolescents for the clinical sample will be recruited from an outpatient child and adolescent mental health clinic in Singapore, while the adolescents for the community sample will be drawn from the participants of Study 1. Selection criteria will be utilised to decrease the possibility that the community participants extracted have an emotional health issue. In addition, the community participants extracted from Study 1 will be matched as closely as possible
to the participants from the clinical sample on the demographic variables of gender, academic year-level, academic stream and age. Criterion-related validity and the associated construct validity of the MACSA-Revised will be determined by comparing the responses of the matched clinical and non-clinical groups to examine the ability of the MACSA-Revised to discriminate between clinical and non-clinical adolescents. Emotion dysregulation is expected to be higher in the clinical sample and, therefore, the fear of emotion should be higher in a clinical sample as well.

Associations between gender and year-level, together with participant’s clinical status (i.e., belonging to the clinical sample or the community sample), and fear of emotion will also be analysed to further understand the clinical utility of the MACSA-Revised.

Method

Participants

Clinical Sample. The clinical sample for this study consisted of 40 adolescents recruited from an outpatient mental health clinic in Singapore. Youths, aged between 12 and 17 years, who were attending their first visit at the Child Guidance Clinic, Institute of Mental Health, Singapore, were approached and asked if they were willing to fill in a questionnaire for a research study. Only adolescents in mainstream secondary schools were included in this study. Prior to initiation of data collection, all staff in the clinic were briefed about the study and were advised to contact the study investigators for assistance should participants raise queries about the study with them. Ethics approval for this study was obtained from the Institute of Mental Health Clinical Research Committee (reference: CRC No 274/2009), the National Healthcare Group Domain Specific Review Board (NHG DSRB; reference: A/09/581), as well as the Murdoch University Human Research Ethics Committee (reference: 2009/108).
As required by NHG DSRB, both parent and adolescent had to give consent to participate in the study. Furthermore, it was required that information about the study and other details in the Participant Information Sheet (see appendix F) be discussed with the adolescent before administration of the questionnaire. It was emphasised to participants that their medical care would not be compromised and there would not be any negative consequences to themselves or their family should they decide not to take part in the study or to withdraw from the study at any point. Participants were assured of confidentiality and assured that their responses would not be shared with parents, attending clinicians or school officials. They were also given a copy of the consent form and the Participant Information Sheet. Participants were required to fill in their demographic details of gender, age, academic year-level and academic stream. Although it had been the intention to use date of birth as a matching criterion when selecting community participants to form the control group, NHG DSRB did not approve obtaining this information from participants with the concern that confidentiality might be compromised. Thus, it was decided that age of participants, rather than date of birth, would be used as a matching criterion.

Before starting on the questionnaire, participants were told to read each item carefully and circle the most appropriate and immediate response. The investigator administering the questionnaire also informed the participant that they could ask for help at any time and that the investigator would be situated at the clinic counter some distance away. These procedures were carried out by either the principal investigator or her co-investigators with every participant.

Most participants completed the questionnaire within 5 to 10 minutes. Participants were encouraged to voice their thoughts or queries about the questionnaire when they handed the completed questionnaire back to the investigator.
who administered the questionnaire. They were also reminded that they could contact
the study investigators anytime in future should they have further concerns about the
study.

A total of 40 questionnaires were administered. Information on diagnosis was
obtained at the end of each day when medical record files were returned to the
medical record office. This information was then recorded at the top right hand
corner of the completed questionnaire. Diagnoses of all clinic participants, as
recorded by doctors, were clustered as follows: normal variant \( n = 10 \), acute
psychosis \( n = 1 \), adjustment disorder with depressive features \( n = 2 \), attention
deficit hyperactivity disorder \( n = 4 \), anxiety disorders including panic disorder,
obsessive compulsive disorder, separation anxiety disorder and social phobia \( n = 6 \),
autistic spectrum disorder \( n = 1 \), conduct disorder \( n = 1 \), depression \( n = 5 \),
dysthymia with borderline traits \( n = 1 \), emotion disorder with depressive features \( n = 1 \),
sleep walking with social anxiety disorder \( n = 1 \), disruption of sleep circadian
rhythm \( n = 1 \), insomnia related to school stress \( n = 1 \), selective mutism \( n = 1 \),
poor anger control with borderline personality traits \( n = 1 \), self harm with low self
esteem \( n = 1 \), sexual abuse \( n = 2 \).

It was decided that the 10 participants considered *normal variant* in the clinic
would remain in the clinical sample. More often than not, referrals of adolescents to
the Child Guidance Clinic in Singapore are initiated by parents, schools or police.
Thus, it is likely that these adolescents who have been referred were observed to be
somewhat atypical, as compared to their peers. This “atypicality” may possibly be
reflected in emotion regulation capabilities, which may have been deemed
maladaptive at some point, which led to the eventual referral to the clinic. It is likely
that the emotion regulation capabilities of these normal variant participants are to
some extent less functional, as compared to their peers in the community. Therefore, given that a referral had been made to the clinic for them, it was decided that it would be appropriate for normal variant participants to be included in the clinical sample.

Community Sample. The community sample for Study 2 was drawn from the participants of Study 1. As the sample size of the clinical group was much smaller than that of the sample size of the community group in Study 1, 40 participants from Study 1 were extracted to serve as the comparison group in Study 2. The responses of the community sample from Study 1 on the CES-DC, SCAS and AngerAQ were first examined to ensure that the eventual extracted community participants were unlikely to be of clinical concern in the areas of depression, anxiety or anger. For each measure, it was decided that a cut-off score of 1 standard deviation above the mean total scale score would be utilised. Only responses that fell below the cut-off score for all three measures were included for possible matching to the clinical sample. A remaining 402 out of the 595 participants from Study 1 fulfilled criteria. Next, to ensure as close a match sampling as possible, the 40 community participants extracted were as closely matched as possible in terms of age, gender, academic year-level and academic stream to the 40 clinical sample participants.

As not all clinical participants had a perfect match within the 402 community participants, it was decided that gender would be matched first, followed by academic year-level, academic stream and then age. Age was deemed to be the least important factor to be matched in this study, as not only would most students in the same year-level be of the same age, the academic stressors of particular year-levels and academic streams were considered factors of greater priority to be matched. given that Singapore is a society that values academic success.
Table 12 summarises the demographic profile of the participants of the clinical and community samples. The eventual matches allowed for all clinical participants to be matched exactly on the groups of gender and upper or lower secondary levels (i.e., collapsed year-levels) with the community participants.

Table 12

**Demographics of Participants for Study 2 (N = 80)**

<table>
<thead>
<tr>
<th></th>
<th>Clinical (n = 40)</th>
<th>Community (n = 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-years-old</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>14-years-old</td>
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<td>8</td>
</tr>
<tr>
<td>15-years-old</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>16-years-old</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>17-years-old</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Year-level and Stream</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Secondary 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal (Technical)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Normal (Academic)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Express</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Special</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Secondary 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal (Technical)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Normal (Academic)</td>
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<td>Express</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Special</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Secondary 3</strong></td>
<td></td>
<td></td>
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<tr>
<td>Normal (Technical)</td>
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<td>0</td>
</tr>
<tr>
<td>Normal (Academic)</td>
<td>4</td>
<td>9</td>
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<tr>
<td>Express</td>
<td>7</td>
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<tr>
<td>Special</td>
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<tr>
<td><strong>Secondary 4</strong></td>
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<tr>
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<tr>
<td>Normal (Academic)</td>
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<td>3</td>
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<tr>
<td>Express</td>
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<td>2</td>
</tr>
<tr>
<td>Special</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Secondary 5</strong></td>
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<tr>
<td>Normal (Academic)</td>
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<td>0</td>
</tr>
</tbody>
</table>
Materials

Modified Affective Control Scale for Adolescents-Revised (MACSA-Revised). The 18-item MACSA-Revised that was administered to the community sample in Study 1 was administered to the clinical sample. The MACSA-Revised administered to the clinical sample was renamed Adolescent Emotions Survey to ensure consistency in face validity of the questionnaire between the clinical and the community samples. Similarly, the MACSA-Revised was administered in English to the clinical sample.

Reliability analysis revealed the MACSA-Revised to have good internal consistency in the entire N = 80 sample (α = .91), as well as the clinical sample (α = .93) and the community sample (α = .85). The entire sample had a total score mean of 59.16 and standard deviation of 17.97, while the clinical sample had a total score mean of 63.27 and standard deviation of 20.39, and the community sample had a total score mean of 55.01 and standard deviation of 14.35.

Results

Data Coding and Entry

Data for the clinical sample was entered into Statistical Package for Social Sciences (SPSS) version 16.0 for the Macintosh. Each completed survey was assigned a unique form identification number and labelled on the top right-hand corner. Diagnoses were also recorded at the top right-hand corner of the questionnaire. Responses to the 18 items in the questionnaire were entered, along with additional variables included for form identification number, diagnosis, age, gender, year-level and academic stream. As numbers were too small in individual year-levels, participants were collapsed into lower secondary levels (year-levels Secondary 1 and 2) and upper secondary levels (year-levels Secondary 3, 4 and 5). A
new variable labelled “Collapsed Year-level” was created to accommodate the collapsed year-levels.

Data Screening Prior to Analysis

Data for the clinical sample of Study 2 was collected between January 2010 and June 2010. Prior to data analysis, a crosscheck of each entry in the clinical sample dataset with its corresponding questionnaire was conducted. Relevant corrections to inaccurate data entry were made. In addition, examination of the descriptive statistics of the items was carried out using SPSS FREQUENCIES to ensure accuracy of data entry. Subsequently, reverse-worded items were recoded.

The clinical sample dataset ($n = 40$) was checked for missing values, outliers, normality and linearity. Missing values were minimal and random, with only one missing value each on five items. It was decided that a mean substitution of missing data would be employed to replace all missing data in a variable with the series mean of that variable, as this was not a large sample and pairwise or listwise deletion of missing data would cause valuable data to be lost. The dataset was checked for outliers by running box plots. SPSS BOXPLOT found 6 outliers. Given that these were not large in number and were responses from different participants, they were retained for further analyses. A statistical check conducted on the skewness and kurtosis values for all 18 items found them to be within an acceptable range. With 18 items, examination of all pairwise scatterplots to check for linearity was impractical, therefore a random check on a number of plots were run. Amongst the scatterplots examined, none of the scatterplots showed departure from linearity.

The comparison community sample dataset ($n = 40$) was also checked for missing values, outliers, normality and linearity. Although more missing values were detected in this sample, they appeared random, with two missing values on items 3
and 4 and one missing value each on 9 other items. It was again decided that a mean substitution of missing data would be employed to replace all missing data with the series mean of the variable. Similarly, the dataset was checked for outliers by running box plots. SPSS BOXPLOT found 7 outliers. Again, these were not large in number and were responses from different participants. Thus, they were retained for further analyses. A statistical check conducted on the skewness and kurtosis values for all 18 items found all but one item to be within an acceptable range. As in the analysis of responses in Study 1, Item 7 was positively skewed in the community sample in this study. No transformations were performed, given that this appeared to be important data to be retained for use in comparison analyses with the clinical sample group. As with the clinical dataset, a random check on a number of pairwise scatterplots revealed no departure from linearity.

Clinical Status, Gender and Collapsed Year-Level Comparisons

Although it was recognised that interaction effects between clinical status, gender and collapsed year-level were not likely to be significant given the small sample size, it was nevertheless the interest of this study to examine the possibility of interaction effects, and the subsequent implications of present or absent interaction effects. Thus, comparisons were made across various clinical status, gender and collapsed year-level variables. The number of participants in each condition is illustrated in Table 13.
Before running the ANOVAs, pre-analysis screening of data on the total Fear of Emotion scale and five subscales was conducted to check if the normality assumption was met for each group in each comparison variable. Given the limited numbers in each group, it was unsurprising that Shapiro-Wilk test results were significant, indicating that the normality assumption was violated, for a number of groups. The community group ($p = .039$), male group ($p = .025$), lower secondary group ($p = .007$) had significant Shapiro-Wilk results on the Lack of Clarity subscale; the clinical group ($p = .045$), male group ($p = .020$) and lower secondary group ($p = .004$) had significant Shapiro-Wilk results on the Fear of Embarrassment subscale; and the female group ($p = .042$) had significant Shapiro-Wilk results on the Fear of Anger subscale. These violations were noted and considered in later comparison analyses.

A series of $2 \times 2 \times 2$ ANOVAs were conducted on the total Fear of Emotion scale and the five subscales separately. The homogeneity assumption was met for most analyses, except in the analysis of the Fear of Anger subscale. On this subscale, the Levene’s test of homogeneity just met significance ($p = .045$). Thus, a more stringent $p$ level of .01 was used when interpreting the ANOVA results for the Fear of Anger subscale.
No significant interaction effects were found in all six runs of the three-way ANOVAs conducted on each subscale and the total scale. It is noted, however, that the interaction effect of Clinical Status x Gender on the total Fear of Emotion scale revealed a close to statistically significant effect, $F(1, 72) = 3.19, p = .078$, partial $\eta^2 = .042$. Similarly, the Clinical Status x Gender on the Fear of No Recovery subscale also revealed a close to statistically significant effect, $F(1, 72) = 3.02, p = .089$, partial $\eta^2 = .040$.

Significant main effects were found ($p < .05$, 2-tailed) for a number of analyses.

**Main Clinical Status Effect**

Recalling that the normality assumption had been violated for the community group on the Lack of Clarity subscale and the clinical group on the Fear of Embarrassment subscale, the non-parametric Mann-Whitney $U$ test was conducted concurrently with the ANOVAs in these analyses. However, as results of the Mann-Whitney $U$ tests were similar to that of the ANOVA analyses, only the ANOVA results are reported, as non-parametric tests are generally less powerful than their parametric counterparts (Allen & Bennett, 2008).

As illustrated in Table 14, main clinical status effects were found in four of the analyses. A main clinical status effect was found on the total Fear of Emotion scale with clinical participants ($M = 3.51, SD = 1.13$) scoring significantly higher on the total Fear of Emotion scale than community participants ($M = 3.06, SD = 0.80$). The clinical sample ($M = 3.51, SD = 1.35$) also had significantly higher scores on the Fear of No Recovery subscale than the community sample ($M = 3.01, SD = 1.13$). Similarly, the clinical sample had statistically significant elevated scores ($M = 3.54, SD = 0.96$), as compared to the community sample ($M = 3.02, SD = 0.94$), on the
Lack of Control of Anxiety subscale. The analysis on the Lack of Clarity subscale also indicated that the clinical sample ($M = 3.36, SD = 1.40$) had a significantly higher Lack of Clarity subscale score than the community sample ($M = 2.74, SD = 1.01$).

Table 14

**Clinical Status Main Effects**

<table>
<thead>
<tr>
<th></th>
<th>Clinical M (SD)</th>
<th>Community M (SD)</th>
<th>$F(1, 72)$</th>
<th>$p$</th>
<th>$\eta^2$</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion scale</td>
<td>3.51 (1.13)</td>
<td>3.06 (0.80)</td>
<td>5.55</td>
<td>.021*</td>
<td>.058</td>
<td>.642</td>
</tr>
<tr>
<td>Fear of No Recovery subscale</td>
<td>3.51 (1.35)</td>
<td>3.01 (1.13)</td>
<td>4.03</td>
<td>.048*</td>
<td>.045</td>
<td>.509</td>
</tr>
<tr>
<td>Lack of Control of Anxiety subscale</td>
<td>3.54 (0.96)</td>
<td>3.02 (0.94)</td>
<td>6.05</td>
<td>.016*</td>
<td>.074</td>
<td>.680</td>
</tr>
<tr>
<td>Lack of Clarity subscale</td>
<td>3.36 (1.40)</td>
<td>2.74 (1.01)</td>
<td>6.61</td>
<td>.012*</td>
<td>.067</td>
<td>.718</td>
</tr>
<tr>
<td>Fear of Embarrassment subscale</td>
<td>3.38 (1.69)</td>
<td>3.18 (1.42)</td>
<td>0.40</td>
<td>.527</td>
<td>.005</td>
<td>.096</td>
</tr>
<tr>
<td>Fear of Anger subscale</td>
<td>3.90 (1.74)</td>
<td>3.82 (1.24)</td>
<td>0.16</td>
<td>.686</td>
<td>.002</td>
<td>.069</td>
</tr>
</tbody>
</table>

* $p < .05$ level (2-tailed)

Effect sizes using $\eta^2$ were calculated. Bearing in mind that the general convention, as recommended by Cohen (1988), is that the effect size of $\eta^2 = 0.01$ is considered small, $\eta^2 = 0.059$ is considered medium and $\eta^2 = 0.138$ is considered large, the statistically significant differences reported above produced close to medium effect sizes, as suggested by their $\eta^2$ value.

**Main Gender Effect**

Similarly, as the normality assumption had been violated in the male groups on the Lack of Clarity subscale and the Fear of Embarrassment subscale, as well as the female group on the Fear of Anger subscale, the non-parametric Mann-Whitney $U$ test was conducted concurrently with the ANOVAs in these analyses. As before,
results from the Mann-Whitney $U$ tests were similar to those of the ANOVA analyses, and therefore only the ANOVA results are reported.

Table 15 illustrates the main gender effects. Main gender effects were found in two of the analyses. A main gender effect was found on the total Fear of Emotion scale, with females ($M = 3.55, SD = 0.97$) scoring significantly higher on the total Fear of Emotion scale than males ($M = 3.09, SD = 0.98$). Similarly, females had statistically elevated scores ($M = 3.56, SD = 1.20$), as compared to males ($M = 2.68, SD = 1.17$), on the Lack of Clarity subscale. As illustrated by their $\eta^2$, the effect size of the findings on the Lack of Clarity subscale was close to large, while the effect size of the finding on the total Fear of Emotion scale was close to medium.

Table 15

Gender Main Effects

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>$F(1, 72)$</th>
<th>$p$</th>
<th>$\eta^2$</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion</td>
<td>3.09 (0.98)</td>
<td>3.55 (0.97)</td>
<td>4.19</td>
<td>.044*</td>
<td>.044</td>
<td>.523</td>
</tr>
<tr>
<td>scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of No Recovery</td>
<td>3.06 (1.20)</td>
<td>3.53 (1.32)</td>
<td>2.60</td>
<td>.112</td>
<td>.029</td>
<td>.356</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Control of</td>
<td>3.17 (1.06)</td>
<td>3.43 (0.86)</td>
<td>1.54</td>
<td>.219</td>
<td>.019</td>
<td>.231</td>
</tr>
<tr>
<td>Anxiety subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Clarity</td>
<td>2.68 (1.17)</td>
<td>3.56 (1.20)</td>
<td>10.43</td>
<td>.002**</td>
<td>.106</td>
<td>.890</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Embarrassment</td>
<td>3.16 (1.64)</td>
<td>3.44 (1.43)</td>
<td>0.29</td>
<td>.595</td>
<td>.003</td>
<td>.082</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Anger</td>
<td>3.78 (1.62)</td>
<td>3.97 (1.34)</td>
<td>0.12</td>
<td>.725</td>
<td>.001</td>
<td>.064</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**$p < .01$ level (2-tailed)**

* $p < .05$ level (2-tailed)

Main Collapsed Year-Level Effect

Again, as the normality assumption had been violated in the lower secondary groups on the Lack of Clarity subscale and the Fear of Embarrassment subscale, the non-parametric Mann-Whitney $U$ test was conducted concurrently with the ANOVAs
in these analyses. The Mann-Whitney $U$ test indicated a similar significant result to that of the ANOVA analysis for the Fear of Embarrassment subscale. However, the Mann-Whitney $U$ test revealed non-significant differences on the Lack of Clarity subscale, $U = 585.50$, $z = -1.92$, $p = .055$, which was contrary to the ANOVA analysis. However, as this result was close to significance, ANOVA results will nevertheless be utilised in this analysis, given that the sample sizes were not vastly different ($n = 34$ vs. $n = 46$) and parametric tests are more powerful than non-parametric tests.

As illustrated in Table 16, main collapsed year-level effects were found in all but one analysis. A main collapsed year-level effect was found on the total Fear of Emotion scale, the Fear of No Recovery subscale, the Lack of Clarity subscale, the Fear of Embarrassment subscale and the Fear of Anger subscale. Upper secondary students scored significantly higher than lower secondary students, with medium to large effect sizes, in these five analyses.
Table 16

**Collapsed Year-Level Main Effects**

<table>
<thead>
<tr>
<th></th>
<th>Lower Secondary</th>
<th>Upper Secondary</th>
<th>$F(1, 72)$</th>
<th>$p$</th>
<th>$\eta^2$</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fear of Emotion</td>
<td>2.92 (0.91)</td>
<td>3.56 (0.98)</td>
<td>9.66</td>
<td>.003**</td>
<td>.101</td>
<td>.866</td>
</tr>
<tr>
<td>scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of No Recovery</td>
<td>2.84 (1.17)</td>
<td>3.57 (1.25)</td>
<td>7.22</td>
<td>.009**</td>
<td>.080</td>
<td>.755</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Control of</td>
<td>3.13 (1.13)</td>
<td>3.39 (0.85)</td>
<td>1.15</td>
<td>.286</td>
<td>.014</td>
<td>.185</td>
</tr>
<tr>
<td>Anxiety subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Clarity</td>
<td>2.69 (1.12)</td>
<td>3.32 (1.29)</td>
<td>6.10</td>
<td>.016*</td>
<td>.062</td>
<td>.683</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Embarrassment</td>
<td>2.77 (1.61)</td>
<td>3.65 (1.41)</td>
<td>7.72</td>
<td>.007**</td>
<td>.092</td>
<td>.783</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Anger</td>
<td>3.36 (1.39)</td>
<td>4.23 (1.48)</td>
<td>7.50</td>
<td>.008**</td>
<td>.090</td>
<td>.771</td>
</tr>
<tr>
<td>subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**$**p <.01 level (2-tailed)

* $p <.05$ level (2-tailed)

Taken together, results indicate that clinical status, gender and collapsed year-levels were all variables that affected responses on the MACSA-Revised.

**Discussion**

Prior to research conducted by Geddes and her colleagues (Geddes & Dziurawiec, 2007; Geddes et al., 2007), there was no available instrument measuring the fear of emotion in the adolescent population and the study of fear of emotions had received scant attention within the adolescent clinical population. Study 2 was therefore undertaken to examine the clinical utility and construct validity of the MACSA-Revised in terms of its ability to differentiate between Singaporean adolescents attending a mental health clinic and adolescents from the community.

**Criterion-Related Validity**

As emotion dysregulation is deemed to be characteristic of psychopathology, criterion-related validity, and in turn, construct validity, of the MACSA-Revised was
demonstrated as significant differences were found between adolescent participants from the mental health clinic and participants from the community in their responses on the instrument. Clinical participants reported higher total Fear of Emotion scores, as compared to the community participants. In addition, the clinical participants had significantly higher scores than the community participants on the Fear of No Recovery, Lack of Control of Anxiety and Lack of Clarity subscales. These differences found between the clinical and community participants produced medium effect sizes. It is inferred from these results that the clinical participants experienced a greater fear of emotion than the community participants, due largely to feeling hopeless and worrying that recovery may not be possible when experiencing distressing emotions, along with perceiving a lack of control as well as a lack of clarity when anxious.

Interestingly, unlike results of Study 1, gender differences were pronounced. Gender main effects were found, with females reporting significantly higher scores than males on the total Fear of Emotion scale, and this difference produced a medium effect size. In addition, females also reported significantly higher scores on the Lack of Clarity subscale when compared with males, and this difference produced a close to large effect size. Thus, it appears that in a sample comprising both clinical and community participants, females had a heightened fear of emotion, due largely to a fear of not being able to think clearly when anxious.

Differences were also apparent between upper secondary and lower secondary students in this study. Collapsed year-level main effects were found on all, except the Lack of Control of Anxiety subscale, analyses. In the current sample of both community and clinical participants, upper secondary school students had a clearly heightened fear of emotion when compared to lower secondary school students, and
these differences produced at least medium effect sizes. This finding implies that the upper secondary school students in this study had a fear of emotions that comprised worrying about not being able to recover from distressing emotions, not being able to think clearly when anxious, having a fear of embarrassment as well as a fear of anger. However, they did not fear not having control over their feelings of anxiety.

Taken together, it appears that the total Fear of Emotion scale and the Lack of Clarity subscale are clearly able to differentiate between groups of different clinical status, gender and collapsed year-level in a Singaporean sample of both clinical and community participants. However, given the small sample size of the current study, these main effect findings may not, in fact, be clearly delineated. Indeed, close to significant interaction effects were found for Clinical Status x Gender on the total Fear of Emotion scale and Fear of No Recovery subscale. It is likely that interaction effects may have been significant had the sample size been larger to allow for adequate sampling in each condition.

Furthermore, it is interesting that the Fear of Embarrassment subscale did not differentiate between clinical and community groups, although nine out of the 40 clinical participants had disorders which were anxiety-related. This finding is somewhat surprising as embarrassment and embarrassability are associated with concern of evaluation by others (Keltner & Buswell, 1997; Lewis, 1995, Miller, 2007; Singelis et al., 1999; Singelis & Sharkey, 1995), which inherently holds an anxiety component. Perhaps a cultural explanation may explain the lack of difference in scores between the clinical participants and the community participants, whereby embarrassability may be prevalent within the Singapore culture, such that adolescents with or without a clinical diagnosis are equally fearful of embarrassment. At the same time, it is noted that the Fear of Embarrassment subscale did in fact differentiate
between upper secondary and lower secondary students in this study. If a cultural view was the only explanation for the lack of embarrassment differences found between clinical and community sample, it is unlikely that the Fear of Embarrassment subscale would have differentiated between collapsed year-levels, as upper and lower secondary students would then be as likely to be fearful of embarrassment as well. Again, this points to the possibility of interaction effects.

These significant main effects and non-significant interaction effects, along with results from Study 1 will be discussed in further detail below in the General Discussion section.

Clinical Implications

The construct validity of the MACSA-Revised has been demonstrated in its ability to differentiate between clinical and community participants. Results of this study are important as they indicate that, similar to research conducted with adults, fear of emotion appears to be implicated in psychopathology in adolescents as well.

The potential of utilising the MACSA-Revised in conceptualising and delivering psychotherapy is highlighted with this finding. As seen in the literature review section, tools for measuring constructs related to emotional reactivity in adolescents are lacking, with few instruments having been validated on an adolescent clinical sample. As such, results from this study indicate that the MACSA-Revised is a psychometrically robust instrument that can be used in clinical settings. Having an additional emotion measure for adolescents, such as the MACSA-Revised, will allow for a better assessment of the different components of emotional reactivity and regulation that may lead to a trajectory towards psychopathology in adolescent populations. The adolescent-friendly language used in the MACSA-Revised, together with the ease of administration and the short amount of time required to complete it,
allows for it to be easily included as part of the assessment protocol for youths who present at a mental health clinic setting. The individual’s responses on the MACSA-Revised can then contribute to a clear assessment of the development and maintenance of the presenting psychopathology. A thorough assessment is an important pre-requisite before treatment can be conceptualised and delivered.

As suggested by Nock et al. (2008), future research into psychopathology and, consequently, treatment options, may require researchers and clinicians to examine symptom clusters, rather than global clinical diagnoses, before conceptualising treatment. Perhaps adolescents whose fear of emotions contributes to maintenance of their clinical symptoms may need a greater emphasis on addressing their emotions during treatment. Having a larger focus on emotions during treatment is in line with the recommendation by Southam-Gerow and Kendall (2002) who suggested that integrating an emotion-focused component into existing treatments that currently only focus on problem-solving or cognitive restructuring may aid emotion regulation in youths who face difficulties, not only due to their problematic circumstances and thoughts, but also due to a lack of ability to cope with their own intense emotions. Indeed, recent efforts in looking at interventions for children and adolescents have paid considerably more attention to the emotion component of treatment (e.g., Izard, Trentacosta, King, & Mostow, 2004; Suveg, Kendall, Comer, & Robin, 2006; Suveg, Southam-Gerow, Goodman, & Kendall, 2007).

Furthermore, a growing number of clinicians and researchers are subscribing to the notion that the tendency to judge, control or avoid emotions is maladaptive and detrimental to one’s mental health and, thus, propose that non-reactivity to and acceptance of emotions without judgement, avoidance or control may alleviate
emotional distress and be the key to successful treatment (e.g., Hayes et al., 1999; Hayes et al., 1996; Linehan, 1993b; Segal et al., 2002).

The suggestion of focusing on emotion in therapy is consistent with the findings of Forbes et al. (2008) who found that Fear of Anger scores (as measured by the ACS) predicted treatment outcomes over anger severity, social support, social relationships and therapeutic alliance in combat veterans with PTSD. In the Singaporean adolescents’ context, the lack of clarity in thought when anxious may indeed be the factor that needs to be addressed in the youths who present with emotional symptom clusters at mental health services.

Looking at the fear of emotion concept from a symptom cluster point of view may also lead to a better understanding of the reasons why some treatments work for some and not for others. For example, Mindfulness Based Cognitive Therapy (MBCT; Seagal et al., 2002) is one form of treatment that targets the experience of emotion. It has been found to be efficacious for those with recurrent depression (i.e., defined as three or more episodes) and significantly decreases relapse for such individuals. However, it is not as effective for those with less than three episodes of depression. The exact reasons and explanation for this finding are not known as yet. Perhaps those with recurrent depression have a higher fear of emotion and targeting this emotional reactivity in the mindfulness component of MBCT is what is effective in treatment, while standard cognitive behaviour therapy that focuses on cognitive restructuring remains helpful for those with less than three episodes of depression. Further research is definitely required in this area and having an instrument such as the MACSA-Revised will contribute to a better understanding of emotional reactivity that may lead to psychopathology in adolescents.
Limitations of the Study

Despite the potential of the measure for use in understanding psychopathology in adolescents, the current findings should be viewed in the context of this study’s limitations. Firstly, the comparison community group was extracted from the participants in Study 1 on the basis of their responses on the self-report emotion measures. Although precautions were employed to select only participants who were unlikely to be of clinical concern, there was no guarantee that the community participants did not meet criteria for a clinical diagnosis. Practical limitations of the current project precluded a more stringent selection of community participants. This selection constraint could possibly have restricted the differences found on the MACSA-Revised between the community and the clinical groups. Future research could address this concern by further administering a diagnostic questionnaire (e.g., Patient Health Questionnaire – Adolescent; Johnson, Harris, Spitzer, & Williams, 2002) to the comparison community group to ensure that they are less likely to have a clinical diagnosis.

Another limitation of this study is the nature and size of the clinical sample. It had been the initial aim of this study to recruit a larger number of clinical participants of varying diagnoses and ages. However, this aim was not achieved although a range of diagnoses amongst the 40 clinical participants was present. Thus, the small sample size did not allow for adequate power to detect interaction effects amongst the different clinical status, gender and collapsed year-level groups.

In addition, analysis could not be conducted to examine differences between the different clinical disorders. Logistical constraints during the data collection phase lead to the heterogeneity of the clinical sample and limit the conclusions that can be drawn. Principally, the results of the study indicate that adolescents with mental
health issues have a fear of emotion, but the precise relationships to specific clinical disorders are yet to be determined. It is expected that different diagnoses would result in subscale differences. For example, although the Fear of Embarrassment subscale did not differentiate between the clinical and the community samples, it would be interesting to see if the subscale did differentiate between participants with anxiety disorders and participants of other disorders, given that anxiety, especially social anxiety, is more related to embarrassment. Also, research studies conducted on adult participants in Western cultures have demonstrated that different subscales of the ACS were found to be related to different clinical symptoms (e.g. Forbes et al 2008; Olatunji et al., 2010). Future studies should continue this line of research using adolescent samples to further the understanding of pathways to psychopathology.

Further research should also be carried out with regards to this specific group of participants to examine if “normal variant” clients of mental health clinics differ significantly on the MACSA-Revised from those who receive a diagnosis, as such research has potential for early identification of youths at risk for emotional disorders in the community at large.

**Strengths of the Study**

Within the acknowledged constraints and limitations noted above, this study has succeeded in validating the MACSA-Revised in a sample of both clinical and community adolescents. It therefore has contributed to meeting the need for an increase in emotion measures that can be used with confidence in an adolescent clinical population. In considering the variety of diagnoses amongst the clinical participants, results of the current study allude to the notion that the fear of emotion is present and related to various clinical disorders amongst adolescents. Therefore,
emotional reactivity remains an important dimension of emotion dysregulation that needs to be considered when looking at treatment of psychopathology in adolescents.

Summary

Results of this study evidenced the construct validity and clinical relevance of the MACSA-Revised. It appears that the 18-item MACSA-Revised, like the original adaptation of the ACS for adolescents—the MACSA, is a reliable measure for use with adolescents presenting in a mental health clinic setting and is able to differentiate between clinical and community adolescents. This study also demonstrated that fear of emotion is implicated in psychopathology amongst adolescents and the MACSA-Revised has the potential of being a successful assessment instrument that may help conceptualise treatment plans for adolescents presenting with mental health issues.
CHAPTER 9

GENERAL DISCUSSION

The rationale for the current thesis was to address the lack of appropriate emotion measures for emotion reactivity in adolescents with the anticipation that this could lead to future research focusing on pathways of emotion dysregulation that contribute to psychopathology in adolescents. Thus, the objective of this thesis was to evaluate the suitability and cross-cultural utility of a version of the ACS adapted for use with adolescents--the MACSA-Revised. Results from the current studies indicate the promising clinical potential of the MACSA-Revised. Exploratory factor analysis found that the MACSA-Revised was relatively robust and had acceptable psychometric properties, using data from a Singaporean adolescent sample. Construct validity of the MACSA-Revised was demonstrated in Study 1 through correlations with other measures of emotions. In addition, criterion-related validity that was found through analyses in Study 2 further emphasised that the instrument had construct validity. The MACSA-Revised was able to differentiate between clinical and community adolescents.

Integration of Findings

The current research found that the fear of emotion construct comprises five separate but related factors that are largely unique to a Singaporean context. At the same time, these five factors appear to measure the construct of fear of emotion as indicated by researchers who have looked into this construct previously (Barlow, 1991; Taylor & Rachman, 1991; Williams et al., 1997), whereby it is postulated that the fear of emotion occurs largely due to a sense of lack of control of thoughts, feelings and behaviours when experiencing activation of emotion arousal.
It was found in Study 1, which utilised a Singaporean adolescent community sample, that the fear of emotion construct differentiates between genders and between collapsed year-levels only to a very small extent. No interaction effects between gender and collapsed year-levels were found in Study 1. However, the pattern of findings from Study 1 was not replicated in Study 2, when both adolescent community and clinical participants were involved. With the inclusion of the clinical sample, main effects of gender and collapsed year-levels were found on the fear of emotion scale as well as a number of subscales, with these differences producing at least medium effect sizes. In addition, close to significant interaction effects were found for Clinical Status x Gender on the total Fear of Emotion scale and Fear of No Recovery subscale, even with the small sample size in each condition. Taken together, these group difference analyses indicate that the MACSA-Revised is sensitive to year-level and gender differences to a much greater degree when clinical adolescent participants are included. These findings imply that year-level and gender differences should be taken into consideration when looking at the fear of emotion in youths who present at a mental health clinic.

It is noted that females in Study 1 and Study 2 had significantly higher scores on the total Fear of Emotion scale, as well as the Lack of Clarity subscale. However, these differences were more pronounced in Study 2, where effect sizes were larger. Thus, it appears that a lack of clarity in thought when anxious may be a factor that needs to be targeted when looking at female adolescents in the community who may be at risk of psychopathology.

It was also found that the Fear of Embarrassment subscale differentiated significantly between the upper secondary and lower secondary groups in the combined clinical and community sample in Study 2, with the difference being of a
medium to large effect size. Interestingly, the Fear of Embarrassment subscale had not differentiated between any other comparison groups in both Study 1 and Study 2. It appears that even though it may be cultural that embarrassment is an emotion that is feared to a similar extent between genders and year-levels in the community, embarrassment nevertheless is a significant emotion that upper secondary students with mental health concerns come to fear.

The fear of anger subscale is another factor that appears to differentiate clearly between upper and lower secondary school students. Fear of Anger scores were significantly higher in upper secondary students in both Study 1 and Study 2, with the difference being accompanied by a much larger effect size in Study 2, when clinical participants were included in the sample. Thus, anger appears to be an emotion that need to be factored into one’s consideration of an upper secondary school student’s presenting problems at a mental health clinic. Indeed, fear of anger, may be a factor that puts an upper secondary school student in the community at risk for development of mental and emotional health problems.

Another important observation made when looking at results of the two studies together was that although the Fear of No Recovery subscale had been highly correlated to the total Fear of Emotion scale in Study 1, it had not differentiated between the clinical and community samples in Study 2. This is an important finding as it signifies that the concept of fear of emotion cannot be merely substituted by the Fear of No Recovery subscale in Singapore. All dimensions of the fear of emotion construct are required for a better understanding of psychopathology that may arise in Singaporean adolescents.
Clinical Implications of Current Research

Fear of emotion has been studied amongst adults in Western cultures and has evidenced meaningful associations with an array of maladaptive outcomes (e.g., Sauer & Baer 2009; Turk et al., 2005; Yen et al., 2002). It has also been found that having the fear of emotion may in fact impede treatment outcomes (Forbes et al., 2008). Consistent with research in adults, the moderate effect sizes for the differences between the clinical and the community samples found in Study 2 indicate that fear of emotion is indeed an important concept to be considered even in non-Western cultures, when attempting to understand youths who have been referred to mental health services. Given that the current studies have found the MACSA-Revised to be a relatively robust measure when used with both community and clinical adolescents in Singapore, and that it is able to differentiate between Singaporean adolescents attending a mental health clinic and community adolescents, the MACSA-Revised is likely to be a useful tool for both research and clinical purposes. It is anticipated that the MACSA-Revised will be used in future as an assessment tool to further study the concept of fear of emotion in psychopathology amongst adolescents, and perhaps it will eventually be used in the community as a screening tool for adolescents at risk of emotional disorders. In light of the finding that inclusion of the “normal variant” participants in the clinical sample had still produced significant differences between the community and clinical sample, it is all the more likely that the potential of the MACSA-Revised as a community screening tool can be further pursued.

Furthermore, the practical administrative concerns of administering the MACSA-Revised in the community had been addressed in the implementation of Study 1, whereby school personnel did not report difficulties in following the instructions provided for administering the questionnaire. The brevity of the
instrument also implies that completing the questionnaire will not interfere very much with the school curriculum. Therefore, with further research and development, the MACSA-Revised can eventually be a cost-effective tool that can be administered to adolescents in the community to screen for those at risk of developing psychopathology. Community adolescents who present with high scores on the MACSA-Revised can then be referred to counsellors in the community or mental health professionals for early intervention. Any emotional symptom presentations as well as the adolescent’s ability to deal with fear of emotions can be addressed at an early stage to prevent any deterioration of the adolescent’s mental and emotional well-being.

The important pre-requisite of a thorough and comprehensive assessment when an adolescent presents at a mental health facility is again reiterated, as only then can one conceptualise a clear case formulation of the presenting problems. Using the MACSA-Revised as a measure of emotion reactivity will aid in the assessment of symptom clusters, with the goal of having a better understanding of how presenting psychopathology had developed and is maintained. Only with a clear case formulation can a treatment plan be effectively thought out and implemented.

Alongside the benefits of using the MACSA-Revised as an assessment tool before psychotherapy commences, the instrument may also be used to measure therapeutic change and treatment outcome as therapy progresses. The MACSA-Revised can be used frequently throughout treatment to assess treatment outcomes, given its strengths of being an instrument that has been found to be easily understood by adolescents in both the clinical and community samples, as well as being an instrument that is easily administered and completed in both the community and
clinical settings. Looking at changes in scores on the various subscales will also allow for the clinician to continuously tailor therapy to suit the individual’s needs.

Future Directions

Undeniably, further research needs to be conducted with the MACSA-Revised to continue improving its psychometric properties. Confirmatory factor analyses with other Singaporean community and clinical adolescent samples, to ensure that the five factors remain invariant over different samples, would further endorse the use of the MACSA-Revised in Singapore. Also, such research can only serve to improve the measure as a whole, particularly if further modification and analysis can be conducted on the Lack of Control of Anxiety subscale. Increasing the sample size when looking at the measure in clinical populations is also a necessary improvement to be considered in future studies.

Future research can look into norming the instrument and having established means and standard deviations for clinical and community samples, as having a suggested clinical cut-off score that indicates clinical dysfunction will allow for increased utility of the instrument. In addition, clinical significance of changes in scores over the course of treatment can then be confidently calculated.

Summary

The potential of the MACSA-Revised remains in its ability to examine how maladaptive emotion reactivity, specifically the fear of emotion, can lead to psychopathology. Having an instrument such as the MACSA-Revised has implications for the conceptualisation and delivery of treatment for adolescents who present with emotional and behavioural concerns. Therefore, it is hoped that the preliminary evidence of the utility of this measure will lay the foundation of future work in the study of emotion regulation amongst adolescents.
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Fear of Emotion in Adolescents


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doi:10.1037/0022-3514.94.6.925


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depressive disorders. *Archives of General Psychiatry, 55*, 56–64. doi:10.1001/archpsyc.55.1.56


across the anxiety disorders? Journal of Anxiety Disorders, 6, 249-259.
doi:10.1016/0887-6185(92)90037-8
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doi:10.1016/0887-6185(92)90022-Y
doi:10.1007/s10608-005-1651-1


Yeh, C. J., & Huang, K. (1996). The collectivistic nature of ethnic identity


Appendix A

Adolescent Emotions Survey

ADOLESCENT EMOTIONS SURVEY (1)

Date of Birth: __/__/__
Gender: Male / Female (please circle)
Level: Secondary 1 / 2 / 3 / 4 / 5 (please circle)
Stream: Express / Normal (A) / Normal (T) / Special (please circle)

Below is a list of statements adolescents sometimes make when talking about their emotions. Think about how you have been feeling over the past week and rate how much you agree with each of the statements by drawing a circle around the most appropriate number below each statement, with 1 being very strongly disagree and 7 being very strongly agree.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>very strongly disagree</td>
<td>disagree</td>
<td>neutral</td>
<td>agree</td>
<td>strongly agree</td>
<td>very strongly agree</td>
<td></td>
</tr>
</tbody>
</table>

1. I get so upset when I am nervous that I cannot think clearly.
   1  2  3  4  5  6  7

2. I feel comfortable that I can control how anxious I am feeling.
   1  2  3  4  5  6  7

3. If people were to find out how angry I sometimes feel, the consequences might be pretty bad.
   1  2  3  4  5  6  7

4. I am afraid I could go into a depression that would wipe me out.
   1  2  3  4  5  6  7

5. When I get nervous, I think I am going to go crazy.
   1  2  3  4  5  6  7

6. I am able to stop myself from becoming overly anxious.
   1  2  3  4  5  6  7

7. I am afraid I might try to hurt myself if I become too depressed.
   1  2  3  4  5  6  7

8. It scares me when I am nervous.
   1  2  3  4  5  6  7

9. Being nervous isn’t much fun, but I can handle it.
   1  2  3  4  5  6  7

10. There is nothing I can do to stop feeling nervous once it has started.
    1  2  3  4  5  6  7

11. When I start feeling “down”, I think I might let the sadness go too far.
    1  2  3  4  5  6  7

12. Once I get nervous, I think that my feelings might get out of hand.
    1  2  3  4  5  6  7

13. When I get really unhappy, I worry that I will stay that way.
    1  2  3  4  5  6  7

14. I am afraid that I will talk nonsense or talk funny when I am nervous.
    1  2  3  4  5  6  7

15. Depression is scary to me – I am afraid that I could get depressed and never recover.
    1  2  3  4  5  6  7

16. I don’t really mind feeling nervous; I know it will go away.
    1  2  3  4  5  6  7

17. I am afraid that letting myself feel really angry about something could cause me to totally lose it.
    1  2  3  4  5  6  7

18. When I am nervous, I am afraid I will act stupid.
    1  2  3  4  5  6  7

Please turn over.
Below is a list of ways you might have felt or acted. Please rate how much you felt this way during the past week, with 1 being *not at all* and 4 being *a lot*.

<table>
<thead>
<tr>
<th></th>
<th>1: not at all</th>
<th>2: a little</th>
<th>3: some</th>
<th>4: a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I was bothered by things that usually don’t bother me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I did not feel like eating, I wasn’t very hungry.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I wasn’t able to feel happy, even when my family or friends tried to help me feel better.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I felt like I was just as good as other kids.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I felt like I couldn’t pay attention to what I was doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I felt down and unhappy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I felt like I was too tired to do things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I felt like something good was going to happen.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I felt like things I did before didn’t work out right.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I felt scared.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I didn’t sleep as well as I usually sleep.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I was happy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I was more quiet than usual.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I felt lonely, like I didn’t have any friends.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I felt like kids I know were not friendly or that they didn’t want to be with me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I had a good time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I felt like crying.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I felt sad.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I felt people didn’t like me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. It was hard to get started doing things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Please turn over.
Please put a circle around the word that shows how often each of these things happen to you. There are no right or wrong answers.

1. I worry about things.............................................. Never Sometimes Often Always
2. I am scared of the dark......................................... Never Sometimes Often Always
3. When I have a problem, I get a funny feeling in my stomach......................................................... Never Sometimes Often Always
4. I feel afraid. .......................................................... Never Sometimes Often Always
5. I would feel afraid of being on my own at home…… Never Sometimes Often Always
6. I feel scared when I have to take a test................. Never Sometimes Often Always
7. I feel afraid if I have to use public toilets or bathroom. Never Sometimes Often Always
8. I worry about being away from my parents......... Never Sometimes Often Always
9. I feel afraid that I will make a fool of myself in front of people............................................................... Never Sometimes Often Always
10. I worry that I will do badly at my schoolwork........ Never Sometimes Often Always
11. I am popular amongst other kids my own age........ Never Sometimes Often Always
12. I worry that something awful will happen to someone in my family. ................................................... Never Sometimes Often Always
13. I suddenly feel as if I can’t breathe when there is no reason for this. ............................................................. Never Sometimes Often Always
14. I have to keep checking that I have done things right (like the switch is off, or the door is locked)........ Never Sometimes Often Always
15. I feel scared if I have to sleep on my own............. Never Sometimes Often Always
16. I have trouble going to school in the mornings because I feel nervous or afraid.......................... Never Sometimes Often Always
17. I am good at sports............................................... Never Sometimes Often Always
18. I am scared of dogs................................................. Never Sometimes Often Always
19. I can’t seem to get bad or silly thoughts out of my head................................................................. Never Sometimes Often Always
20. When I have a problem, my heart beats really fast..... Never Sometimes Often Always
21. I suddenly start to tremble or shake when there is no reason for this.................................................. Never Sometimes Often Always
22. I worry that something bad will happen to me........ Never Sometimes Often Always

Please turn over.
<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td>I am scared of going to the doctors or dentists</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>24.</td>
<td>When I have a problem, I feel shaky</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>25.</td>
<td>I am scared of being in high places or lifts (elevators)</td>
<td></td>
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<tr>
<td>26.</td>
<td>I am a good person</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>27.</td>
<td>I have to think of special thoughts to stop bad things from happening</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>28.</td>
<td>I feel scared if I have to travel in the car, or on a bus or a train</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>29.</td>
<td>I worry what other people think of me</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>30.</td>
<td>I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)</td>
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<td></td>
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</tr>
<tr>
<td>31.</td>
<td>I feel happy</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>32.</td>
<td>All of a sudden I feel really scared for no reason at all</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>33.</td>
<td>I am scared of insects or spiders</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>34.</td>
<td>I suddenly become dizzy or faint when there is no reason for this</td>
<td></td>
<td></td>
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<tr>
<td>35.</td>
<td>I feel afraid if I have to talk in front of my class</td>
<td></td>
<td></td>
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<tr>
<td>36.</td>
<td>My heart suddenly starts to beat too quickly for no reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>37.</td>
<td>I worry that I will suddenly get a scared feeling when there is nothing to be afraid of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>I like myself</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>39.</td>
<td>I am afraid of being in small closed places, like tunnels or small rooms</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>40.</td>
<td>I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>I get bothered by bad or silly thoughts or pictures in my mind</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>I have to do some things in just the right way to stop bad things happening</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>43.</td>
<td>I am proud of my school work</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>44.</td>
<td>I would feel scared if I had to stay way from home overnight</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Please turn over
**ADOLESCENT EMOTIONS SURVEY (4)**

Please rate how much you agree with each of the statements by drawing a circle around the most appropriate number below each statement, with 1 being *extremely unlike me* and 5 being *extremely like me*.

<table>
<thead>
<tr>
<th></th>
<th>1 extremely UNLIKE me</th>
<th>2 somewhat unlike me</th>
<th>3 neither like or unlike me</th>
<th>4 somewhat like me</th>
<th>5 extremely LIKE me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I flare up quickly, but get over it quickly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>When frustrated, I let my irritation show.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>I sometimes feel like a powder keg (i.e. a container filled with gunpowder) ready to explode.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I am an even-tempered person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Some of my friends think I’m a hothead.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Sometimes I fly off the handle for no good reason.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I have trouble controlling my temper.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you for your participation in this survey.
Appendix B

Introduction for Survey Distribution

1. Introduce survey.
   “This is a survey on adolescent emotions for a doctor of psychology student from Murdoch University. This questionnaire is part of her research for her doctoral dissertation.”

2. Hand out participant information sheet and consent forms.
   “Please read through the participant information sheet and sign the consent form. Participation is voluntary so please sign the consent form if you agree to participate. I’ll be collecting the consent form from you in about. You may keep the participation information sheet”

3. Collect signed participant consent forms and pass out a questionnaire to students who consented.
   “Please do not start yet.”

4. Those who did not consent may choose to sit quietly in class or leave the classroom (if school teacher permits).

5. Read out instructions for questionnaire:
   “As this survey is to be kept completely anonymous, please only provide that information which is requested and relevant to this study - DOB, gender, level and stream. Once you start on the questionnaire, please remain silent and do not discuss any of your answers with one another.”
   “Please select the most appropriate and immediate response, do not spend a great deal of time thinking about your answers. When answering the questions, please respond according to your experiences over the last week.”
   “When you have finished please place survey face down on the desk as I will collect the survey from you and place it in a folder. If you have any questions please feel free to raise your hands and I’ll come over to you.”

6. “You may all begin now”

7. Collect back completed surveys.
   Please check that DOB, gender, level and stream have been completed.
   Put consent forms and surveys in folder provided.

8. Thank students.
   “Thank you for participating in this exciting research!”
Appendix C

Adolescent Emotions Survey

Participant Information Sheet

Dear Participant

I am a Doctor of Psychology student at Murdoch University in Western Australia and am also a psychologist employed by the Child Guidance Clinic, Institute of Mental Health, in Singapore. I am working under the supervision of Dr. Suzanne Dziurawiec and Dr Simon Davies of Murdoch University. My study involves investigating the experience of emotion in adolescents. The purpose of this study is to find out how adolescents experience and process different emotions.

A large sample of youths aged 12 to 17 years old from across Singapore will be involved in this study over the next few weeks. You can help by consenting to complete the attached survey, which will ask you questions about how you experience emotions. It will take about 30 minutes to complete this survey. Contained in it are questions which may be seen as personal and private. You can decide to withdraw your consent at any time, without any negative consequences to you, your family or your school. All information given during the survey is confidential and no names or other information that might identify you will be used in any publication arising from the research. Should you feel the need to talk to someone because of any of the questions in the survey, please do approach your Full-Time School Counsellor for advice and appropriate referrals if necessary.

At the end of the study in December 2010, you can access a summary of the overall results at: http://www.psychology.murdoch.edu.au/researchresults/research_results.html

If you are willing to participate in this study, could you please complete the Consent Form on the following page. If you have any questions about this study, please feel free to contact myself at +65 9770 3131 (mobile) or delphinekoh@gmail.com or my supervisors Dr Suzanne Dziurawiec at s.dziurawiec@murdoch.edu.au or Dr Simon Davies at simon.davies@murdoch.edu.au. If you wish to speak to an independent person about your concerns, you can contact Murdoch University's Human Research Ethics Committee on +61 89360 6677 or email ethics@murdoch.edu.au.

Thanks for your time and consideration.

Yours sincerely,

Delphine Koh

Dr. Suzanne Dziurawiec (Supervisor)  Dr. Simon Davies (Supervisor)

This study has been approved by the Murdoch University Human Research Ethics Committee (Approval No. 2009/108), and the Ministry of Education, Singapore.
Adolescent Emotions Survey

Participant Consent

I ______________________________________ have read the information provided. Any questions I have asked have been answered to my satisfaction. I agree to take part in this activity, however, I know that I may change my mind and stop at any time without any consequences to me, my family or my school. I understand that all information provided is treated as confidential and will not be released by the investigator unless required to do so by law.

I agree that research data gathered for this study may be published provided my name or other information which might identify me is not used.

Participant: ____________________________________________

Date: ___/___/___

Investigator: _____________________________

Date: ___/___/___

Supervisors: Dr. Suzanne Dziurawiec, Dr Simon Davies

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Thank you for consenting to participate!
Appendix D
Frequency Histograms of MACSA-Revised Items

Histograms

Figure D1: Frequency Distribution of Responses on MACSA-Revised Item 1

Figure D2: Frequency Distribution of Responses on MACSA-Revised Item 2

Figure D3: Frequency Distribution of Responses on MACSA-Revised Item 3
Figure D4: Frequency Distribution of Responses on MACSA-Revised Item 4

Figure D5: Frequency Distribution of Responses on MACSA-Revised Item 5

Figure D6: Frequency Distribution of Responses on MACSA-Revised Item 6
Figure D7: Frequency Distribution of Responses on MACSA-Revised Item 7

Figure D8: Frequency Distribution of Responses on MACSA-Revised Item 8

Figure D9: Frequency Distribution of Responses on MACSA-Revised Item 9
Figure D10: Frequency Distribution of Responses on MACSA-Revised Item 10

Figure D11: Frequency Distribution of Responses on MACSA-Revised Item 11

Figure D12: Frequency Distribution of Responses on MACSA-Revised Item 12
Figure D13: Frequency Distribution of Responses on MACSA-Revised Item 13

Figure D14: Frequency Distribution of Responses on MACSA-Revised Item 14

Figure D15: Frequency Distribution of Responses on MACSA-Revised Item 15
Figure D16: Frequency Distribution of Responses on MACSA-Revised Item 16

Figure D17: Frequency Distribution of Responses on MACSA-Revised Item 17

Figure D18: Frequency Distribution of Responses on MACSA-Revised Item 18
Appendix E

Frequency Histograms of Gender andCollapsed Year-Level Responses

Gender Histograms

Figure E1: Frequency of Gender Responses on Total Fear of Emotion Scale

Figure E2: Frequency of Gender Responses on Fear of No Recovery Subscale
Figure E3: Frequency of Gender Responses on Lack of Control of Anxiety Subscale

Figure E4: Frequency of Gender Responses on Lack of Clarity Subscale
Figure E5: Frequency of Gender Responses on Fear of Embarrassment Subscale

Figure E6: Frequency of Gender Responses on Fear of Anger Subscale
Collapsed Year-Level Histograms

Figure E7: Frequency of Collapsed Year-Level Responses on total Fear of Emotion Scale

Figure E8: Frequency of Collapsed Year-Level Responses on Fear of No Recovery Subscale
Figure E9: Frequency of Collapsed Year-Level Responses on Lack of Control of Anxiety Subscale

Figure E10: Frequency of Collapsed Year-Level Responses on Lack of Clarity Subscale
Figure 11: Frequency of Collapsed Year-Level Responses on Fear of Embarrassment Subscale

Figure E12: Frequency of Collapsed Year-Level Responses on Fear of Anger Subscale
PARTICIPANT INFORMATION SHEET

1. Study Information

Protocol Title:
Fear of Emotion in Adolescents: The Modified Affective Control Scale for Adolescents (revised)

Principal Investigator & Contact Details:
Delphine Koh
delphinekoh@gmail.com
Child Guidance Clinic
3 Second Hospital Avenue #03-01
Health Promotion Board Building
Singapore 168 937

Co-investigator: Mr Ong Lue Ping
Child Guidance Clinic
3 Second Hospital Avenue #03-01
Health Promotion Board Building
Singapore 168 937
Tel: +65 6435 3251

2. Purpose of the Research Study

You are invited to participate in a research study conducted by Institute of Mental Health in collaboration with Murdoch University in Western Australia. It is important to us that you first take time to read through and understand the information provided in this sheet. Nevertheless, before you take part in this research study, the study will be explained to you and you will be given the chance to ask questions. After you are properly satisfied that you understand this study, and that you wish to take part in the study, you must sign this informed consent form. You will be given a copy of this consent form to take home with you.

You are invited because this study involves finding out how adolescents aged 12 to 17 years old experience and process different emotions. It has been found that the onset of adolescence may bring an increase in the display of strong emotions associated with hormonal changes and with the increased daily hassles of adolescent life. However, there has been minimal research on the experience of emotion amongst adolescents. Thus, this study requires a comparison group of youths attending an outpatient mental health clinic to determine the validity of a scale measuring the fear of emotion in adolescents.

This study will recruit 80 subjects from the Child Guidance Clinic over a period of one year. About 160 subjects will be involved in this study.
3. What procedures will be followed in this study

If you agree to take part in this study, you will be asked to complete a questionnaire which will ask you questions about how you experience emotions.

Your participation in the study will last no more than 10 minutes. You will only need to complete the questionnaire once.

4. Your Responsibilities in This Study

If you agree to participate in this study, you should follow the advice given to you by the study team.

5. What Is Not Standard Care or Experimental in This Study

Although administering questionnaires may be part of standard medical/psychological care, in this study this questionnaire is administered for the purposes of the research, and is not part of your routine care.

6. Possible Risks and Side Effects

Answering the survey may have the possible risk of feeling distressed after answering questions about your emotions. Should you feel the need to talk to someone because of any of the questions in the survey, please do raise your concerns to your doctor-in-charge or contact the research investigators listed below.

7. Possible Benefits from Participating in the Study

There is no known benefit from participation in this study. However, your participation in this study may increase your awareness of how you experience and deal with emotions. In addition, your participation will add to the research in the area of appropriate assessment scales for adolescent emotions.

8. Alternatives to Participation

If you choose not to take part in this study, you will still receive standard care for your condition. In our institution this would be receiving medical and/or psychological care from the doctors and/or therapists in Child Guidance Clinic. Possible benefits of standard care include an improvement in your mental health status while possible risks include experiencing some emotional distress which is often a part of the therapeutic process.

9. Voluntary Participation

Your participation in this study is voluntary. You may stop participating in this study at any time. Your decision not to take part in this study or to stop your participation will not affect your medical care or any benefits to which you are entitled.

If you decide to withdraw from the study, you will be required to return the incomplete questionnaire together with all other official forms to the counter-staff. You may withdraw your participation at any time with no negative consequences to you or your family.
In the event of any new information becoming available that may be relevant to your willingness to continue in this study, you (or your legally acceptable representative, if relevant) will be informed in a timely manner by the Principal Investigator or his/her representative.

12. Compensation for Injury

All studies conducted by Institute of Mental health staff are covered by the ‘NHG Clinical Trials Insurance Scheme’.

Payment for management of the normally expected consequences of your treatment will not be provided by the Institute of Mental Health.

By signing this consent form, you will not waive any of your legal rights or release the parties involved in this study from liability for negligence.

13. Confidentiality of Study and Medical Records

Information collected for this study will be kept confidential. Your records, to the extent of the applicable laws and regulations, will not be made publicly available.

However, NHG Domain-Specific Review Board and Ministry of Health will be granted direct access to your original medical records to check study procedures and data, without making any of your information public. By signing the Informed Consent Form attached, you (or your legally acceptable representative, if relevant) are authorizing such access to your study and medical records.

Data collected and entered into the Case Report Forms are the property of Institute of Mental Health. A softcopy of the de-identified data will be kept in Murdoch University. In the event of any publication regarding this study, your identity will remain confidential.

14. Who To Contact if You Have Questions

If you have questions about this research study, you may contact the Principal Investigator, Delphine Koh (delphinekoh@gmail.com), the Co-investigator, Ong Lue Ping (Tel: +65 6435 3251) or Dr Suzanne Dziurawiec at s.dziurawiec@murdoch.edu.au.

In case of any injuries during the course of this study, you may contact the Principal Investigator, Delphine Koh (delphinekoh@gmail.com) or Co-investigator, Ong Lue Ping (Tel: +65 6435 3251).

The study has been reviewed by the NHG Domain Specific Review Board (the central ethics committee) for ethics approval. It has also been approved by the Murdoch University Human Research Ethics Committee (Approval No. 2009/108).

If you want an independent opinion of your rights as a research subject you may contact the NHG Domain Specific Review Board Secretariat at 6471-3266 or Murdoch University’s Human Research Ethics Committee on +61 89360 6677 or email ethics@murdoch.edu.au.

If you have any complaints about this research study, you may contact the Principal Investigator or the NHG Domain Specific Review Board Secretariat.
CONSENT FORM

Protocol Title:
Fear of Emotion in Adolescents: The Modified Affective Control Scale for Adolescents (revised)

Principal Investigator & Contact Details:
Delphine Koh (delphinekoh@gmail.com)
Co-investigator, Ong Lue Ping (Tel: +65 6435 3251).

I voluntarily consent to take part in this research study. I have fully discussed and understood the purpose and procedures of this study. This study has been explained to me in a language that I understand. I have been given enough time to ask any questions that I have about the study, and all my questions have been answered to my satisfaction.

_______________________    _____________________________    __________________
Name of Participant       Signature                      Date

_______________________    _____________________________
Name of Parent            Signature                      Date

Investigator Statement
I, the undersigned, certify that I explained the study to the participant and to the best of my knowledge the participant signing this informed consent form clearly understands the nature, risks and benefits of her participation in the study.

_______________________    _____________________________    __________________
Name of Investigator /    Signature                      Date
Person administering consent