

**Examining the relationships between emotion regulation
and depression in children and adolescents:
A cultural comparison.**

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List of Abbreviations

ER	Emotion Regulation
ERQ	Emotion Regulation Questionnaire
ERQ-CA	Emotion Regulation Questionnaire for Children and Adolescents
CDI	Children's Depression Inventory
SES	Socio-Economic Status
SEIFA	Socio-Economic Index for Areas (Advantage/Disadvantage Index)
T1	Time One
T2.....	Time Two
T3	Time Three
DV	Dependent Variable
IV.....	Independent Variable
CI	Confidence Interval

Abstract

A number of studies have found that regular reliance on expressive suppression as an emotion regulation strategy has been linked to adverse outcomes and maladjustment. However, the vast majority of research conducted in this area to date has done so using predominantly Western samples. Some researchers have argued that the relationship between the use of expressive suppression and maladaptive functioning may be specific to Western samples and not relevant to people from cultures that place less value on the expression of emotion, such as Asian cultures. Research in support of this claim is now emerging. A number of studies have documented cross-cultural differences in the use of expressive suppression, with adults from Asian cultures being shown to be more likely to report greater use of expressive suppression than those from Western cultures. A small number of studies have also found that the link between suppression and depressive symptoms found in Western samples is not present in people living in Asian countries. However, all of the research conducted in the area to date has focussed on adults, and none of the studies examining cross-cultural differences in the suppression/depression relationship have done so in bicultural samples, or using a longitudinal design. This thesis aimed to address these gaps by comparing the use of expressive suppression, and the maturational change in the use of suppression, in a group of Asian Australian children and adolescents ($n = 391$; Age $M = 11.82$, $SD = 1.57$) with that of a group of Australian children and adolescents ($n = 410$; Age $M = 12.27$, $SD = 1.58$). The study also examined the relationship between the use of expressive suppression and depressive symptomatology with a view to exploring any differences in this relationship across the two cultural groups. As little is known regarding the predictive relationships between suppression and depression over time, the final aim

of the thesis was to conduct a preliminary investigation into the continuity/discontinuity in this relationship over time.

Findings confirmed that the Asian Australian group reported more frequent use of expressive suppression than the Australian group. It was also found that while the use of suppression remained stable with developing age in the Australian group, the Asian Australian group reported less frequent use of the strategy with age. The relationship between the use of expressive suppression and depressive symptomatology was present, but significantly weaker in the Asian Australian group in comparison to the Australian group. In addition, while increased depressive symptomatology was predictive of a later increase in the use of suppression in the Australian group, no such predictive relationship was found in the Asian Australian group. These findings demonstrate that cultural differences in the use of expressive suppression are present at quite an early age in a bicultural sample. It also demonstrated the acculturation effects on the use of expressive suppression in a bicultural sample with development through adolescence, and revealed that acculturation may be important when examining cross-cultural differences in the relationship between expressive suppression and maladjustment. Further research is recommended to establish whether cross-cultural differences in the relationship between use of suppression and depression varies according to the type of emotion being suppressed, and to identify other potential mediators of these relationships.

General Declaration

Monash University

Declaration for thesis based or partially based on conjointly published or unpublished work

General Declaration

In accordance with Monash University Doctorate Regulation 17.2 Doctor of Philosophy and Research Master's regulations the following declarations are made:

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes two unpublished papers. The core theme of the thesis is cross-cultural differences in the use of emotion regulation strategies and their relationships with depression. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the candidate, working within the School of Psychological Sciences under the supervision of Associate Professor Eleonora Gullone and Associate Professor Nikki Rickard.

The inclusion of co-authors reflects the fact that the work came from active collaboration between researchers and acknowledges input into team-based research.

In the case of Chapters 3 and 4 my contribution to the work involved the following:

Thesis chapter	Publication title	Publication status	Nature and extent of candidate's contribution
3	Cross-cultural differences and maturational change in emotion regulation through childhood and adolescence	Submitted	Conceptualisation of research questions, review of appropriate literature, data analysis (in collaboration with statistical advisor), preparation of written manuscript.
4	An examination of the relationship between expressive suppression and depression across cultures in children and adolescents	Submitted	Conceptualisation of research questions, review of appropriate literature, data analysis (in collaboration with statistical advisor), preparation of written manuscript.

I have not renumbered sections of submitted or published papers.

Signed: 

Date: 13/03/2014

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OVERVIEW

Recent times have seen a flood of research papers focussed on the concept of emotion regulation (ER; Gross, 2013). Gross's (1998a, 2001) process model of ER is currently the dominant model in the ER literature, and follows the process of emotion generation to identify the five points at which the regulation of emotions can take place. Importantly, Gross makes the distinction between antecedent-focussed strategies which are those which take place prior to the emotion response being activated, and response-focussed strategies, which take place after the response has been activated. Although most ER strategies are seen as potentially adaptive depending on context, Gross (1998a, 2001; Gross & John, 2003) predicted differences in the consequences of using different ER strategies depending on the timing along the emotion generation spectrum at which they are employed. Specifically, response focussed ER strategies are predicted to lead to more negative outcomes, particularly when used habitually, in comparison to antecedent-focussed strategies.

Two ER strategies, cognitive reappraisal and expressive suppression, have been put forward as exemplars of antecedent-focussed and response-focussed ER strategies, respectively, and many researchers have compared the outcomes of employing these strategies (Gross, 2013). In general these researchers have found that, while use of cognitive reappraisal typically leads to positive outcomes, the use of expressive suppression is often associated with negative outcomes ranging from increased negative affect (Gross & John, 2003; Nezlek & Kuppens, 2008) to psychopathology such as depression (Aldao, Nolen-Hoeksema, & Schweizer, 2010).

However, the majority of these studies have investigated these differences in Western, adult samples.

The current research aimed to address gaps identified in the review of the emotion regulation literature by examining the habitual use of emotion regulation strategies in children and adolescents from two cultural groups within Australia for which cultural norms regarding the expression or suppression of emotion represent potentially contrasting perspectives. The two groups investigated were those children and adolescents who have parents who were born in Australia (the Australian group) and those who have parents who migrated to Australia from Asian countries of origin (the Asian Australian group). The study aimed to determine if there are differences between these two groups in regards to the habitual use of reappraisal and suppression to regulate their emotions, and whether there are differences in any relationship between depressive symptomatology and the habitual use of suppression. In addition, given that children of migrant parents are developing in a bicultural environment, the research aimed to ascertain whether there were developmental differences in the use of emotion regulation strategies as the two groups age through adolescence. The final aim of the study was to carry out a preliminary investigation regarding the direction of the relationship between suppression and depression using a prospective longitudinal design.

It was hypothesised that the Asian Australian children would report more frequent use of suppression than the Australian group. However, in line with previous findings we did not expect to find any differences in the use of cognitive reappraisal. It was also hypothesised that Asian Australian children and adolescents would report less use of expressive suppression as they matured, and that this

maturational change would be greater in this cultural group than in Australian children and adolescents. A positive relationship between increased use of suppression and depressive symptomatology was expected; however, this relationship was hypothesised to be significantly weaker in the Asian Australian children and adolescents than the Australian group. Finally, although the directional nature of the suppression/depression relationship has been largely unexplored, the limited research conducted suggests that depressive symptoms will precede increased use of suppression.

Research Questions and Hypotheses

1. Is there a difference in the use of ER strategies in children and adolescents from different cultural groups?

Hypothesis 1. Asian Australian children and adolescents will report more frequent use of expressive suppression than Australian children and adolescents. No difference is expected in the use of reappraisal.

2. Does the developmental change in the use of ER strategies from childhood to adolescence differ between cultural groups?

Hypothesis 2. As children age through adolescence they will report less frequent use of expressive suppression than younger children. It is hypothesised that this maturational change will be greater in Asian Australian children and adolescents than Australian children and adolescents

3. Is there a relationship between the use of ER strategies and depressive symptomatology and does this differ across cultures?

Hypothesis 3. Depressive symptomatology will be positively related to the use of expressive suppression in Australian children and adolescents but this relationship will be significantly weaker for Asian Australian children and adolescents

4. How does the direction of the relationship between suppression and depression change over time?

Hypothesis 4. Based on previous findings it is expected that increased depressive symptomatology precedes increased use of expressive suppression.

Structure of the thesis

The thesis is presented as a ‘thesis by publication’ and as such it is structured around the two research manuscripts which have been submitted for publication to peer-reviewed journals. As each manuscript is required to stand alone, an unavoidable consequence of this style of thesis is that there must be some repetition across chapters.

Chapter One outlines the theoretical underpinnings of emotion and emotion regulation (ER), upon which this thesis is based. It also leads the reader through the research investigating and contrasting the associated wellbeing outcomes of using cognitive reappraisal and expressive suppression, and provides a review of the literature which has established a link between the use of expressive suppression and psychopathology, and with depression in particular. Chapter Two commences with an exploration of culture and the development of bicultural identities when children grow up in a family of migrant parents. This leads to a consideration of how culture may affect the expression and regulation of emotion, before moving to a review of the current literature examining cross-cultural differences in the use of expressive suppression, and how these differences may affect the relationship between expressive suppression and depression.

Study One, which investigates cross-cultural differences and maturational change in the use of cognitive reappraisal and expressive suppression through adolescence (addressing research questions 1 and 2), is presented in Chapter Three in the form of a manuscript submitted for publication. Chapter Four then presents, also in the form of a manuscript submitted for publication, Study Two, which examined the relationship between expressive suppression and depression, and investigated

whether this differs across the cultural groups studied (research question 3). This study also conducted a preliminary investigation into how the relationship between expressive suppression and depression changes over time (research question 4). The thesis concludes with a general discussion of the major research findings and their implications in Chapter Five.

CHAPTER 1: EMOTION REGULATION AND PSYCHOPATHOLOGY

Emotions are complex social phenomena. They can be defined as “...episodic, relatively short-term, biologically based patterns of perception, experience, physiology, action, and communication that occur in response to specific physical and social challenges and opportunities” (Keltner & Gross, 1999, p. 468). They are an intra-individual state, as well as a means of engaging with, and responding to the environment (Frijda & Mesquita, 1994). Emotions are a fundamental part of human functioning and in themselves are normative, however, regulation of emotions is essential if we are to meet our goals (Gross & Thompson, 2007). Emotion regulation (ER) has been defined as the “attempts individuals make to influence which emotions they have, when to have them, and how these emotions are experienced and expressed” (Gross, Richards, & John, 2006, p. 14). The emotions we choose to express, and which are acceptable to express are of course, heavily influenced by our cultural context. For example, whereas in Australia ‘high activation’ happiness is valued, in other cultures it is discouraged, as it may elicit jealousy in others and disrupt the harmony which is prized in human relationships (Mesquita & Albert, 2007).

The body of literature on the use of ER strategies is growing rapidly, and an increasing number of researchers are finding links between the use of different ER strategies and psychopathology in addition to well-being. In particular, links have been found between the use of expressive suppression to regulate emotions and internalising disorders such as depression (Betts, Gullone, & Allen, 2009; Campbell-Sills, Barlow, Brown, & Hofmann, 2006a, 2006b; Gross et al., 2006; Larsen et al.,

2013; Liverant, Brown, Barlow, & Roemer, 2008; Soto, Perez, Kim, Lee, & Minnick, 2011). However, the vast majority of these studies have used Western adult samples and have not differentiated between cultural groups in their analyses of these links. There is growing evidence that suggests that individuals from collectivist cultures may use expressive suppression to regulate their emotions more often than those from individualist cultures (Butler, Lee, & Gross, 2007; English & John, 2013; Kim & Sherman, 2007; Matsumoto, Yoo, Fontaine, et al., 2008; Mesquita, 2001; Soto et al., 2011; van Hemert, Poortinga, & van de Vijver, 2007). To date, however, there has been little research into whether the association found between expressive suppression and depression in Western samples is also evident in cultural groups with more collectivist value systems. Further, of those few studies that have investigated these differences (Gross & John, 2003; Soto et al., 2011; Su, Lee, & Oishi, 2013), none have done so with child or adolescent populations.

Chapter One of this literature review will explore the concepts of emotion and ER. Models of ER will be considered, as will the developmental trajectory of the use of ER strategies. Also investigated will be the association between the use of expressive suppression and psychopathology, and in particular depression, before turning attention to cultural differences in the use of expressive suppression in Chapter Two. Chapter Two will conclude with an exploration of the possible differences across cultures in the relationship between the use of expressive suppression and depression.

1.1 Emotion

Although there are many theoretical perspectives and definitions of emotion in the literature (James, 1890; Lutz, 1988; Zajonc, 1980), theorists from the functionalist perspective argue that emotions serve a clear function as a means of evaluating an event, situation or experience. Emotions are necessary to prepare us, both cognitively and physically, to respond in order to optimise adaptation to the physical and social environment (Campos, Mumme, Kermoian, & Campos, 1994; Cole, Martin, & Dennis, 2004; Keltner & Gross, 1999; Stemmler, 2004). The process of emotion elicitation can be broken down into a number of core components including: situation, attention, appraisal and response (Cole et al., 2004; Gross, 2008; Gross & Thompson, 2007; Mesquita & Frijda, 1992).

Emotions are elicited by any number of situations. A situation may be internal or external to the individual, and is usually experienced as novel or unexpected (Gross, 2008; Gross & Thompson, 2007). Situations are attended to and appraised with respect to their implications to an individual's wellbeing, goals, and capacity to cope with the situation (Gross, 2008; Mesquita & Frijda, 1992). The functionalist approach is based on the assumption that only events that are significant to the individual will provoke an emotional response (Campos et al., 1994; Ellsworth & Scherer, 2003). The emotional response itself can be manifested as a change in one's subjective experience, behaviour and/or physiology (Gross, 2008; Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). The subjective experience refers to an individual's 'feelings' within an emotion; what it actually feels like as the emotion unfolds (Werner & Gross, 2010). The change in behaviour may include a range of actions, facial expressions, or vocalisations (Barrett, 2006), and the change in physiology refers to the fact that action readiness is associated with changes to the

autonomic nervous system (Gross, 2008; Stemmler, 2004). Thus, for example, the response to an anxiety-provoking situation, such as public speaking, may include the subjective experience of 'butterflies' in the stomach, the behavioural response of fidgeting or pacing, and the physiological response of muscle tension, increased heart rate and increased skin conductance.

Scherer (1984, 2009) extended this approach with his multi-component process model of emotion. In this model, Scherer emphasises the sequential nature of the appraisal process, suggesting that information is processed first according to relevance, then in regards to implications, coping ability and normative significance to the individual. Appraisal is viewed as efficient, in that information is processed only as far along the sequence as required, and is recursive. Thus, the sequence is repeated until the original stimulus is terminated or sufficiently adjusted. The model also proposes the response to an emotional stimulus is synchronised and integrated both within and between the response components; that is, the appraisal process, physiological symptoms, motor expression, motivation and action tendencies. This integrated and recursive view of an emotional response allows the model to account for a wide range of emotional responses, and thus a large amount of individual difference, as well as emphasising the dynamic nature of an emotional response which is continuously changing according to the changing component states.

Emotions can vary in valence (whether 'good' or 'bad'), in kind (e.g., anger versus joy or fear), in duration, and in intensity. It is important to remember that the manifestation of emotion is a flexible process which is sensitive to the social and physical context in which it occurs and is constantly monitored in regards to its ability to move the individual towards a desired outcome (Campos et al., 1994). The

processes of attention and appraisal change the experiences and the response of the self and others, and the response can also alter the situation which gave rise to the emotion in the first place, feeding back on the whole process. Thus, the process of emotion elicitation is inherently regulatory (Cole et al., 2004).

1.2 Emotion regulation

There is a growing base of evidence suggesting the significance of ER in mental health and psychopathology. Despite this, there is still no consensus on the construct's definition (Weinberg & Klonsky, 2009). A broad definition provided by Cole et al. (2004, p. 320) defines ER as “changes associated with activated emotions.” They include in their definition two types of regulatory phenomena: *emotion as regulating*, and *emotion as regulated*. Emotion as regulating refers to the changes that occur as a result of the activated emotion, and these changes include both intra-domain changes (e.g., physiological changes such as changes in cardiovascular activity) and inter-domain changes (e.g., changes in a caregiver's responsiveness in reaction to their child's emotional display). In contrast, emotion as regulated refers to changes in the emotion itself. These include changes in valence, intensity, and duration. While it is useful to be aware of the complexity and multifaceted nature of ER, some researchers argue that this definition is too broad and all-encompassing to be useful to researchers (Bridges, Denham, & Ganiban, 2004; Eisenberg & Spinrad, 2004).

Eisenberg and Spinrad (2004) argue that in defining ER as a useful construct for empirical research, it is necessary to differentiate emotion as a regulator of change from attempts by the individual to regulate emotional experience and/or

expression. They argue that behaviour that simply occurs as a result of an emotional experience is different from attempts to modulate emotion and emotion-related behaviour that is goal-directed. They give the example, for instance, that if the definition of ER includes all the effects of one person's emotions on others, then it is difficult to distinguish ER from many other aspects of social interaction, and in fact *most* social interactions may be labelled as reflecting ER. Their suggestion to limit the definition of ER to that which Cole et al. (2004) described as 'emotion as regulated' is a stance supported by other researchers (Bridges et al., 2004; Gross & Thompson, 2007; A. Lewis, Zinbarg, & Durbin, 2010). Eisenberg and Spinrad (2004) argue further that a useful definition will also emphasise intentionality and the goal-directed nature of ER to distinguish it from unintentional or somewhat involuntary behaviour, and regulatory behaviour initiated by actors external to the individual. However, this implies that ER is always a conscious process. This may not be the case, as much ER is likely to be executed without much conscious awareness (Gross & John, 2003).

While some researchers emphasise the control of emotional experience and expression and the reduction of emotional arousal in their conceptualisations of ER (Garner & Spears, 2000; Kopp, 1989), researchers working from a functionalist perspective suggest there is more to ER than just emotional control and the attenuation of negative affect (Cole, Michel, & Teti, 1994; Thompson, 1994). From this approach, deficiencies in the ability to experience and differentiate the full range of emotions and respond appropriately is just as maladaptive as being unable to reduce negative arousal (Cole et al., 2004; Gratz & Roemer, 2004; Gross & Muñoz, 1995). Researchers also often assume that ER is always adaptive; however it is important to adopt a neutral stance in our definition of ER, as it can be both adaptive

and maladaptive (Gross & Thompson, 2007). For example, someone who uses rumination as a means of regulating emotion may actually experience increased negative affect as a result. Thus, a useful working definition will assist in conceptualising ER as not only the attenuation of emotional experiences and expression, but one that allows for the intensification or amplification of some emotional experiences, without making an assumption regarding the adaptiveness or otherwise of these actions.

In accordance with these arguments most definitions of ER include the use of processes and strategies used to modify the course and expression of emotional arousal in order to attain one's goals (Calkins, 1994; Campos et al., 1994; Dennis, 2007; Gross, 1998b). These strategies may use internal or external resources, may serve to decrease, maintain or increase components of the emotional response, and both positive and negative emotions may be regulated (Gross, 2001; Thompson, 1994). It is this conceptualisation of ER that will guide this review of the ER literature.

1.3 Emotion and emotion regulation: Two factors or one?

The fact that emotions are, to some extent, self-regulatory has led to debate about whether emotion and ER can be distinguished as two separate processes, as this implies that one experiences an emotion and then modifies it in some way which serves the individual's goals. While some researchers propose a two-factor model which clearly differentiates between emotion and ER (Cole et al., 2004; Gross, 1998a), many researchers argue that unregulated emotion simply does not exist, and as such, emotion and its regulation cannot be meaningfully separated into two

distinct processes (Campos, Frankel, & Camras, 2004; Halberstadt & Parker, 2007). Campos et al. (2004) argue that while there may be analytical and conceptual differences between emotion and ER, they are not ontologically distinct. They claim that the processes that regulate emotions originate from the same set of processes that are involved in emotion generation, and as such they are different facets of the same process. In support of this assertion they cite findings indicating that cortical inhibition can precede emotion elicitation (Goldsmith & Davidson, 2004; M. D. Lewis & Stieben, 2004; Sokolov, 1963), that emotional reactions can be affected by modifying expectations prior to an emotion-eliciting event (Fenz, 1974; Fenz & Jones, 1972), and that choosing one's environment can have an effect on one's emotions before they are generated (Goldstein, 1939).

In summary, emotions are complex phenomena which assist us in evaluating, communicating with, and responding to our environment. Situations alone do not produce a response. They first need to be attended to and appraised with regard to the potential impact on the individual, and the response produced can change depending on the way in which the situation is appraised. The generation of emotions is a dynamic and flexible process which can feed back to itself and therefore can be self-regulatory; thus untangling emotion and ER can be a difficult process and some argue the difference is at best analytical and conceptual only. This literature review is not about furthering the one- or two-factor debate, however it is important to be mindful of the complexity of the emotion generative and regulative processes and their interwoven nature as we move into an exploration of ER and the use and consequences of a number of ER strategies.

1.4 Models of emotion regulation

In order to make sense of the potentially limitless number of strategies available to regulate one's emotions, a means of organising them is needed. Some researchers have done this by simply producing a taxonomy of strategies in an attempt to group them in meaningful ways. For instance Parkinson and Totterdell (1999) performed a hierarchical cluster analysis in order to derive a meaningful structure for the 162 strategies they identified through questionnaires, interviews and group discussions. The result was a taxonomy that essentially classifies strategies according to the method used for regulation. For instance, their results suggested that strategies could be first classified as either cognitive or behavioural in nature. Within this classification, strategies could be further classified by intent, that is, either diversion or engagement. They therefore suggested four main classification strategies: cognitive diversion, cognitive engagement, behavioural diversion and behavioural engagement.

While this approach does provide some structure to the vast array of potential ER strategies, it can result in the grouping together of diverse strategies without a theoretical basis for doing so, and without reference to important differences in causes, consequences, and underlying mechanisms for action (Gross, 1998b). The disconnection between cognitive and behavioural regulation strategies which is at the base of this taxonomy is also somewhat tenuous, given the leading evidence-based psychological therapy for many psychological disorders, cognitive behavioural therapy (CBT), is based on the *connection* between cognitive processes and behaviour (Beck, 1976, 1995). It should also be noted that these researchers only investigated strategies for improving unpleasant emotions, and did not include the

up-regulation of emotions in their conceptualisation of affect regulation (Parkinson & Totterdell, 1999).

A different model of ER is provided by Gratz and Roemer (2004) who break ER down into a series of necessary dimensions, which are essentially skills or actions required by the regulator. These dimensions are: “(a) awareness and understanding of emotions; (b) acceptance of emotions; (c) the ability to engage in goal-directed behavior, and refrain from impulsive behavior, when experiencing negative emotions; and (d) the ability to use situationally appropriate emotion regulation strategies flexibly to modulate emotional responses as desired in order to meet individual goals and situational demands” (Gratz & Roemer, 2004, pp. 42-43). They argue that if any or all of these dimensions are absent or deficient, an individual is likely to experience difficulties with ER.

This approach has been received favourably as it is based on clinically relevant ER skills, and emphasises the importance of flexibility in the use of ER strategies (Sloan & Kring, 2007; Weinberg & Klonsky, 2009). However the focus is solely on the regulation of negative emotions rather than both positive and negative emotions, and again it does not include the up-regulation of emotions (both positive and negative). This approach is also focused on the competencies of the regulator, rather than the strategies used. While useful, particularly clinically, this approach does not shed light on the best way to organise the multitude of emotion regulation strategies, nor does it further our understanding regarding the consequences of using these strategies.

1.5 Gross's process model of emotion regulation

A model which does provide us with a means of organising ER strategies and with understanding the causes and consequences of using different strategies is the process model conceptualised by Gross (1998a, 2001; Gross et al., 2006; Gross & Thompson, 2007) who categorises ER strategies according to the timing of their use in the emotion generative process. At the broadest level, Gross argues that a distinction can be made between *antecedent-focused* and *response-focused* ER strategies. *Antecedent-focused* strategies refer to those strategies which are employed before response tendencies have been fully activated, and before behaviour and physiological responses have changed. Gross identified three major targets on the emotion generative continuum at which antecedent-focused strategies can be directed: the situation through *situation selection* and *situation modification*, attention through *attentional deployment*, and appraisal through *cognitive change*.

Situation selection involves taking some sort of action to change the likelihood that one will find themselves in a situation which will produce desirable or undesirable emotions, while situation modification involves modifying the situation in order to alter its potential emotional impact. For instance, seeking out supportive friends at the end of a difficult day is an example of situation selection; however asking those friends not to mention an upsetting topic is an example of situation modification (Gross & Thompson, 2007). Attentional deployment refers to the way in which attention is directed within a situation in order to manipulate emotions. Two common forms of attentional deployment are distraction, where attention is drawn away from emotion eliciting aspects of a situation, and concentration, where attention is drawn to emotional features of a situation. Cognitive change involves changing how we interpret or evaluate a situation in order to alter its emotional

significance. This may involve changing how we think about the situation or how we evaluate our capacity to manage the situation and the demands it produces. One form of cognitive change is cognitive reappraisal, which involves changing a situation's meaning in order to modify its emotional impact (Gross & Thompson, 2007).

Response-focused strategies refer to approaches which are employed once an emotional response is already underway. *Response modulation* involves modifying our physiological, experiential, or behavioural responding as directly as possible. Examples of response modulation include use of drugs, exercise, or relaxation techniques in order to change physiological and experiential responding. Another common form of response modulation is expressive suppression, which involves regulating our expressive behaviour (Gross & Thompson, 2007).

1.5.1 Cognitive reappraisal and expressive suppression

While there is considerable debate regarding which ER strategies are more useful than others, there is a general consensus that some are inherently more adaptive than others (Betts et al., 2009; Bridges et al., 2004; Chambers, Gullone, & Allen, 2009). As antecedent-focused strategies target the emotion generative process very early on and principally concern whether response tendencies are triggered, while response-focused strategies target the process once the response tendencies have already been activated, Gross (1998a, 2001; Gross & John, 2003) predicted that the timing of the ER response would have very different consequences for the regulator. In order to assess this prediction, two ER strategies have been studied extensively; *cognitive reappraisal* and *expressive suppression*. Gross and colleagues (Gross, 1998a, 2002; Gross & John, 2003; Gross & Levenson, 1997) chose these two

ER strategies for empirical investigation because they are both commonly used strategies in everyday life, they could be easily manipulated in a laboratory setting and defined in terms of individual differences, and because they each provide an exemplar of an antecedent- and response-focussed strategy.

In order to assess the physiological and affective consequences of using reappraisal and suppression to regulate emotions, Gross and colleagues have conducted a number of experimental studies using film to elicit emotion specific responses. These studies involved having participants view films which were designed to produce a specific emotional response in the watcher, such as disgust (Gross, 1998a; Gross & Levenson, 1993), sadness and amusement (Gross & Levenson, 1997). The participants were allocated to different instruction conditions: two studies included a suppression and no-suppression group (Gross & Levenson, 1993, 1997), and one included a suppression, reappraisal and control group (Gross, 1998a). Participants in suppression conditions were given instructions to hide their emotional reactions and expressions, participants in reappraisal groups were requested to think about what they were seeing in such a way that they did not feel anything at all, and participants in control conditions simply watched the films with no instructions in regards to ER strategy use.

Results of these studies suggest that the use of both suppression (Gross, 1998a; Gross & Levenson, 1993, 1997) and reappraisal (Gross, 1998a) leads to reduced emotion expressive behaviour. In contrast to reappraisal however, those in the suppression groups exhibited increased sympathetic activation of the cardiovascular system. Those in the reappraisal condition reported reduced emotional experience when watching a disgust eliciting film, while those in the suppression group reported

no such reduction in the experience of disgust (Gross, 1998a; Gross & Levenson, 1993) or sadness (Gross & Levenson, 1997), but curiously, they did report a reduction in the experience of amusement (Gross & Levenson, 1997). It is not yet clear why the use of expressive suppression seems to lead to a decrease in the experience of positive affect, while having no effect on the experience of negative affect, although it has been speculated that it may be related to the fact that suppression involves the expenditure of more physiological and cognitive resources.

These findings have been supported by further studies conducted by this group using correlational research designs developed to investigate the relationship between individual differences in the habitual use of reappraisal and suppression and measures of social and cognitive functioning and well-being. Results of these studies indicated that habitual use of cognitive reappraisal was associated with more positive emotion experience and expression, and less negative emotion experience and expression (Gross & John, 2003; Nezlek & Kuppens, 2008). Other researchers have found reappraisal to be associated with lower stress reactivity as measured by cortisol levels, heart-rate and state anxiety in an acute high stress situation (skydiving), which the authors interpreted as greater resilience to acute stress (Carlson, Dikecligil, Greenberg, & Mujica-Parodi, 2012). Reappraisal has been linked to positive memory bias following stressful situations (Levine, Schmidt, Kang, & Tinti, 2012), greater well-being and larger working memory capacity (McRae, Jacobs, Ray, John, & Gross, 2012).

In contrast, suppression has been found to be associated with lower levels of experience and expression of positive emotion and lower levels of expression of negative emotions (Gross & John, 2003; Nezlek & Kuppens, 2008). The findings

with regard to the relationship between habitual use of suppression and the experience of negative emotion have been mixed, with some results showing no relationship, and others finding that the more an individual suppressed, the more negative emotion they felt (Dalgleish, Yiend, Schweizer, & Dunn, 2009; Gross & John, 2003; Nezlek & Kuppens, 2008). Other findings suggest that greater use of suppression is associated with increased stress-related symptoms (Moore, Zoellner, & Mollenholt, 2008), decreased performance on tests of memory, and in particular, verbal memory (Richards & Gross, 2000), and decreased self-esteem (Nezlek & Kuppens, 2008).

The use of expressive suppression has also been linked to lower social functioning. Butler et al. (2003) asked unacquainted pairs of women to watch an upsetting film and then discuss their reactions. Unknown to their partner, one woman from each pair was given instructions to either suppress, reappraise, or interact naturally with her partner in conversation. They found that although both forms of regulation reduced emotion expressivity for both positive and negative emotion, only those in the suppression group displayed less responsiveness to emotional cues and were more distracted in their conversation with their partners than were the participants in other conditions. The partners of the suppression participants also displayed greater increases in blood pressure following their conversation compared to partners of reappraisers or controls, suggesting that interacting with a partner who displays less emotion, and who is unresponsive to emotional cues is more stressful than interacting with a partner who is more responsive.

Other research on the impact of habitual use of suppression, has also found that suppression is associated with poorer social support (Gross & John, 2003; Srivastava,

Tamir, McGonigal, John, & Gross, 2009), fewer feelings of closeness with others, and lower social satisfaction (Srivastava et al., 2009). Gross and John (2003) also found that, according to both self- and other-reports of how well liked participants were, those who used reappraisal more often were more liked by others than those who tended to use suppression.

In an effort to explain why habitual use of expressive suppression seems to lead to poor social outcomes, English and John (2013) examined two potential mediators of this relationship. One potential mediator was decreased expression of positive emotion, based on previous findings regarding the importance of the expression of positive emotion to relationship satisfaction. They also identified subjective inauthenticity as a possible mediator, as previous studies have indicated that suppression changes the expression of emotions rather than the experience of them. They argued that the experience of inauthenticity may create feelings of incongruence in the individual which may then lead to lower relationship satisfaction and social support. They found that inauthenticity was the only significant mediator of the link between suppression and poor social functioning. Moreover, these findings were replicated in samples of European Americans, Asian Americans, and Chinese participants.

In summary, using both experimental and correlational designs, researchers have found that the use of expressive suppression is linked to negative affective, physiological, cognitive and interpersonal consequences. While the use of expressive suppression does decrease the expression of both negative and positive emotions, the effect on affective experience is mixed, with a decrease in the experience of positive emotions without having an effect of the experience of negative emotions. Given

these findings of adverse consequences with increased use of expressive suppression to regulate emotions, and given the prominence of emotion regulation and dysregulation in mental health and psychopathology, researchers have recently begun to investigate whether the use of suppression is associated with psychopathology.

1.6 Expressive suppression and psychopathology

ER deficits or difficulties have been identified in over half of the Axis I and Axis II psychological disorders in the DSM-IV-TR (American Psychiatric Association, 2000; Werner & Gross, 2010). Given the findings that the use of expressive suppression is associated with psychological, emotional, cognitive and social functioning, it is hardly surprising that researchers are increasingly exploring the association between habitual use of expressive suppression and psychopathology (Aldao et al., 2010; Campbell-Sills & Barlow, 2007; Gross & John, 2003; Werner & Gross, 2010).

Research with clinical populations has found that a pattern of greater use of expressive suppression and reduced use of cognitive reappraisal is associated with a number of psychological disorders. For instance, Roemer, Litz, Orsillo, and Wagner (2001) found that individuals with Post Traumatic Stress Disorder (PTSD) were more likely to use suppression more often than those without PTSD, and furthermore, increased use of suppression was related to increased severity of PTSD symptoms (Roemer et al., 2001). Other researchers have also found a link between PTSD symptoms and greater use of suppression (Moore et al., 2008). Greater use of suppression has also been found to be associated with general anxiety symptomatology (Aldao et al., 2010; Hofmann, Heering, Sawyer, & Asnaani, 2009;

Livingstone, Harper, & Gillanders, 2009; Moore et al., 2008), as well as other specific anxiety disorders such as social anxiety (Spokas, Luterek, & Heimberg, 2009; Turk, Heimberg, Luterek, Mennin, & Fresco, 2005) and generalised anxiety disorder (Mennin, Heimberg, Turk, & Fresco, 2005) and other psychological conditions such as eating disorders (McLean, Miller, & Hope, 2007). Researchers working with clinical samples diagnosed with schizophrenia or related psychotic disorders have reported mixed findings with some reporting increased use of expressive suppression in comparison to non-clinical samples (Livingstone et al., 2009; van der Meer, van't Wout, & Aleman, 2009), while others have reported no difference (Henry, Rendell, Green, McDonald, & O'Donnell, 2008).

The role of ER in depression is seen as so important by some theorists that they have argued for a model of depression which is based on ER as a central feature of dysfunction (Gross & Muñoz, 1995). These theorists argue that ER provides an integrative perspective which contains explanatory power from biological, cognitive and interpersonal levels. Although there is currently no consensus regarding the precise nature of the ER deficits involved in depression, it has been argued that depression changes emotional reactivity in a number of different ways. For instance, three competing views argue alternatively that depression reduces emotional responding to positively-valenced stimuli, increases emotional responding to negatively-valenced stimuli, or results in a generalised flattening of emotional responding to both positively- and negatively-valenced stimuli (Liverant et al., 2008; Rottenberg, Gross, & Gotlib, 2005).

Given the findings that the use of expressive suppression can maintain or even increase one's experience of negative emotion whilst decreasing the experience of

positive emotion, the relationship between the use of expressive suppression and depressive symptomatology is increasingly being investigated (Aldao et al., 2010). Research with both non-clinical (Dennis, 2007; Fresco et al., 2007; Gross & John, 2003; Kahn & Garrison, 2009; Moore et al., 2008) and clinical adult samples (Beblo et al., 2012; Campbell-Sills et al., 2006a, 2006b; D'Avanzato, Joormann, Siemer, & Gotlib, 2013; Joormann & Gotlib, 2010; Liverant et al., 2008) has found that increased use of expressive suppression is associated with symptoms of depression and mood disorders. For instance, Beblo et al. (2012) compared suppression use amongst clinically depressed and non-clinical participants. They found that the depressed patients reported increased suppression of both positive and negative emotions compared to the non-clinical group. They also found that, across both the clinical and non-clinical groups, the suppression of positive and negative emotions was associated with depressive symptoms. Specifically, those who reported greater use of suppression also reported greater depressive symptomatology. It is important to note, however, that the direction of the relationship between depressive symptoms and suppression remains unclear. Nevertheless, there is evidence to suggest that depressive symptoms may precede the use of suppression, suggesting that increased depression leads to more suppression rather than vice versa (Larsen et al., 2012; Larsen et al., 2013). However, further research is required to support this finding.

Although it generally seems that increased depressive symptomatology is related more strongly to increased use of suppression than decreased use of reappraisal (Aldao et al., 2010), some studies have found that clinical samples with major depressive disorder do report less use of reappraisal than non-clinical samples (D'Avanzato et al., 2013; Joormann & Gotlib, 2010). Interestingly, another study using a non-clinical community sample also found that greater reappraisal ability was

associated with less depressive symptoms, but only in those participants who were experiencing high levels of stress. This relationship was not found in those experiencing low levels of stress (Troy, Wilhelm, Shallcross, & Mauss, 2010). The moderation of the relationship between depression and expressive suppression is an area clearly in need of further research.

1.7 The development of emotion regulation

ER skills are developed incrementally over time, and the development of ER is highly intertwined with parallel development in social, cognitive, and biological domains (Gross & Muñoz, 1995; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Infants rely on parents and other caregivers to initiate and manage emotional arousal, although they do discover ways of influencing their emotions by, for instance, shifting their gaze and attention or through the use of rudimentary self-soothing behaviours such as sucking (Cole et al., 1994; Gross & Muñoz, 1995; Thompson & Goodman, 2010). As children become capable of independent movement and language, further means of ER become available to them as they are capable of effecting larger changes to their environment and as caregivers are able to directly instruct the child to modulate their emotional appraisal or response (Gross & Muñoz, 1995; Thompson & Goodman, 2010). It is also with the development of language that a child is able to give self-instruction which increases the scope of emotion regulation (Zeman et al., 2006).

Through contact with expanding sources of socialisation (such as the family, teachers, peers, and so on), and with the child's growing self-awareness and developing self-image, the child learns which emotions they can safely feel and

express and learns skills to manage their feelings in ways that will please those around them (Gross & Muñoz, 1995; Thompson & Goodman, 2010). With cognitive development, the child is able to use increasingly sophisticated and internalised ER strategies such as internal distraction (e.g., thinking happy thoughts), taking another's point of view, or cognitive reframing (Gross & Muñoz, 1995). As adolescents achieve greater opportunity to shape their environments, these ER strategies are complemented by more personal strategies such as seeking the support of close friends, participating in meaningful activities, or playing music which has special resonance (Thompson & Goodman, 2010). With development into adulthood, additional skills are required including increased flexibility and context dependent skills. These are needed to negotiate the different areas of our lives such as work and other public activities and home life (Gross & Muñoz, 1995).

Many factors can influence the development of ER. These may be internal factors such as temperament which can influence ER through qualities such as emotional reactivity, and thus the intensity and persistence of emotional (particularly negative) responding (Thompson & Goodman, 2010). External factors can also influence ER development. These factors include caregiver qualities such as adaptive or maladaptive ER. For instance, if a child observes others who are successfully managing their emotions, they learn that ER is possible. This is not the case if the emotional experience of significant others is observed to be out of control (Gross & Muñoz, 1995; Thompson & Goodman, 2010). The cultural context is another external factor which exerts considerable influence on the development of ER, through the sanctioning or encouragement of some emotional behaviour over others.

Research on ER has typically focused on periods of infancy, early childhood and adulthood, and few studies during late childhood or adolescence have explored the development of ER strategy use within Gross' theoretical framework. Gullone, Hughes, King, and Tonge (2010) explored the use of cognitive reappraisal and expressive suppression during late childhood and adolescence. Using a longitudinal design to explore the developmental pattern of the use of the two strategies over three years, they found that over time participants reported less use of expressive suppression. Moreover, the use of this strategy was less in older than in younger participants. Interestingly, older participants also used reappraisal less often than younger participants, but use of reappraisal was stable over time. This result is difficult to explain as an increase in the use of reappraisal with greater experience and maturity would be expected; however it may suggest that by late childhood stability in reappraisal use has already developed as proposed by Gullone et al. (2010), which would provide support for those who argue that ER is predominantly trait-like in nature (Cole et al., 1994).

Despite the growing body of research that has focused on the relationship between ER and psychopathology in adult samples, studies with children and adolescents are relatively scarce. One study found that children's use of inhibition of emotional expression to help them manage their angry and sad emotions, was predictive of increased levels of internalising symptoms (Zeman, Shipman, & Suveg, 2002). Carthy, Horesh, Apter, Edge and Gross (2010) found that adolescents with an anxiety disorder were less successful at applying reappraisal when instructed to while viewing threat depicting images, and reported less frequent everyday use of reappraisal. Keenan, Hipwell, Hinze, and Babinski (2009) also found that inhibited expression of negative emotions was associated with increased depressive symptoms

and more impaired functioning in a sample of nine-year-old girls. Betts, Gullone and Allen (2009) conducted a study which compared ER strategy use of adolescents with high or low levels of depressive symptomatology. They found that the presence of high levels of depressive symptomatology was associated with greater use of expressive suppression and lower use of reappraisal.

1.8 Summary

The bulk of the research regarding the link between the use of ER strategies and psychopathology reviewed in this chapter has been conducted with adult samples. The vast majority of research conducted in the ER field has focussed on periods of infancy and early childhood, or adulthood, and few studies that have focussed on late childhood or adolescent periods have explored the development of ER strategy use within Gross' theoretical framework. Thus, research which focuses on these developmental periods is required to further understanding of the developmental trajectory of ER development. Given the high prevalence of internalising disorders amongst the adolescent population, the relationship between ER use and these disorders in an adolescent population also requires urgent investigation.

An increasing body of research has found that the use of different ER strategies is associated psychopathology and wellbeing, with particular links found between the use of expressive suppression and internalising disorders such as depression in Western populations. While there is lower prevalence of depression in Asian countries such as China and Japan, there is also evidence that individuals from these cultures are likely to use expressive suppression more often than individuals from

more individualistic cultures such as the United States and Australia. Despite these somewhat contradictory observations, thus far very little research has directly investigated the relationship between the use of expressive suppression and depressive symptomatology across cultural groups. There is evidence to suggest that the relationship between suppression and depressive symptomatology does differ depending on cultural values in regards to emotional expression and healthy emotional responding; however more explicit research is required to explore these differences.

CHAPTER 2: CULTURE AND EMOTION REGULATION

In Chapter One, the growing evidence that the use of expressive suppression is associated with negative outcomes such as increased negative affect, reduced positive affect, social impairments, and psychopathology was reviewed. Chapter Two will explore the research that has investigated cultural variations in the suppression/depression relationship. First, the concept of culture and how culture is operationalized in theoretical and empirical psychology will be reviewed. Acculturation factors and how children and adolescents negotiate growing up within two cultural contexts will also be examined, before looking at the influence that cultural norms can have on the emotional expression and regulation of individuals. This will then lead to a discussion of how these cultural norms may affect the relationship between expressive suppression and depression, which has been found in Western samples.

2.1 Culture

Matsumoto and Juang (2004, p. 10) define culture as:

... a dynamic system of rules, explicit and implicit, established by groups in order to ensure their survival, involving attitudes, values, beliefs, norms, and behaviors, shared by a group but harbored differently by each specific unit within the group, communicated across generations, relatively stable but with the potential to change across time.

Culture provides a framework in which rules of behaviour are established, and thus can guide and constrain behaviour. At the same time culture is constantly changing in response to the shifting values, beliefs and behaviours of those within it. Although we are all socialised into our cultural framework from an early age, there are

different levels of adherence and conformity to cultural demands, and thus there will always be variation in behaviours between individuals within a cultural context (Matsumoto & Juang, 2004). On an individual level, cultural beliefs and values shape how we see ourselves in relation to others and influence psychological processes and the ensuing conscious experience (Kitayama & Markus, 1994).

A number of dimensions have been proposed as a means of distinguishing between cultural groups. Hofstede (1983) analysed data available from the employee attitudes surveys of a large multinational corporation across 40 countries. Factor analysis of the responses to questions regarding values generated four dimensions which were conceptualised as manifestations of the dominant value systems within cultures. These dimensions were: *Power Distance*, or the extent to which members accept the uneven distribution of power; *Uncertainty Avoidance*, which is the degree to which members feel uncomfortable with uncertainty and support beliefs or maintain institutions which support certainty and conformity; *Masculinity/Femininity*, which refers to a preference for either achievement, assertiveness and material success or for relationships, modesty and empathy; and *Individualism/Collectivism*, which refers to a social framework in which individuals should care for themselves and their families only, as opposed to a tightly knit social framework in which “individuals can expect their relatives, clan, or other in-group to look after them, in exchange for unquestioning loyalty” (Hofstede, 1983, p. 336).

By far the most widely researched of these dimensions is that of Individualism/Collectivism (Matsumoto, 2007; Matsumoto & Juang, 2004; Triandis, 1989). Western cultures such as the United States and Australia tend to be high on Individualism, while Collectivism is more prevalent in less developed and Eastern

countries such those in Asia and Africa (Hofstede, 1983; Hofstede & McCrae, 2004). Collectivist cultures typically foster a high degree of harmony, cohesion, and conformity within groups, and personal goals are subjugated in favour of group cohesion (Matsumoto, 2007). Collectivists tend to be concerned about the consequences of their actions on other members of their in-group, tend to share resources and feel interdependent with in-group members (Triandis, 1989). Individualist cultures on the other hand, value individual freedom and individuality; independence and the achievement of personal goals is encouraged (Kim & Sherman, 2007; Triandis, 1989).

Markus and Kitayama (1991) have posited that an important means of differentiating cultural groups is how the social orientations of independence and interdependence are incorporated into the shared definition and construction of the self, or self-construal. They argued that individuals possess both types of self-construal, but that cultural context typically fosters the development of one or other self-construal more strongly. For instance, in many Western cultures which encourage an independent view of the self, this view is organised primarily around a set of internal attributes such as abilities, talents or personality traits (Kitayama, Markus, & Kurokawa, 2000; Markus & Kitayama, 1991), and the major task within this culture is to ‘discover, actualise, and confirm these internal attributes of the self’ (Kitayama et al., 2000, p. 94). In contrast, many non-Western cultures, and in particular many Asian cultures, are organised around the belief in the primary connectedness or interdependence among those within an in-group. In these cultures the view of the self is organised around the relationships of which the self is a part and the major cultural task is to ‘fit in, adjust to the relationship, to become a member, while constraining, taming, or otherwise conditioning internal desires or

wishes so as to facilitate the ever-important interpersonal harmony and unity' (Kitayama et al., 2000, pp. 94-95).

Markus and Kitayama (1991) argued that self-construal could have implications for one's motivation, emotion, and cognition. For instance they argued that self-construal would have an effect on the types of goals developed by an individual, with interdependent people being more likely to work towards socially oriented goals, while independent people would be more likely to be motivated by internal, personal goals. They also noted that the types of emotions experienced and expressed would differ according to self-construal. They differentiated between ego-focussed, later called socially-disengaging emotions (e.g. pride, anger), and other-focussed, later called socially-engaging emotions (e.g. respect, shame). It was argued that the former are more likely to be experienced by those with independent self-construal, while the latter would be experienced and expressed more often in those with interdependent self-construal.

The authors also argued that cognitively, those with interdependent self-construal were more likely to pay attention to others and the social context than those with independent self-construal. For example, Masuda et al. (2008) found that when presented with an image of a number of people, Japanese participants took into account the emotional expressions of the bystanders in the image to assist in their given task of interpreting the emotion experienced by a target individual. In contrast, the American participants took into account the emotional expression of the target person only.

Although the term self-construal has become somewhat synonymous with independence and interdependence, Markus and Kitayama (1991) noted that many

other forms of self-construal were possible. For instance, some researchers have argued that gender differences in behaviour among Western individuals could also be explained by differences in self-construal and that the typical Western female self-construal resembles that of interdependence (Cross, Hardin, & Gercek-Swing, 2011; Cross & Madson, 1997). However it has been noted that the form of interdependence likely to be experienced by Western women, based on a focus on individual close relationships (such as spouse or sibling), could be quite different to that experienced by East Asians, which is based more on group membership and social roles (Cross et al., 2011; Cross & Madson, 1997). As such, a further dimension of self-construal, relational self-construal, has been proposed by these researchers to account for gender differences based on relational views of the self (Cross & Gore, 2003; Cross et al., 2011; Kashima et al., 1995).

In summary, the most commonly used dimensions for differentiating culture are that of Individualism/Collectivism, which is useful for characterising cultures and societies, and Independence/Interdependence, which is useful for understanding an individual's self-concept or self-construal within the cultural or societal context (Cross et al., 2011; Triandis, 1989). Clearly these conceptualisations are generalisations, and every culture and society will be made up of individuals who adhere to the dominant world view to a greater or lesser extent than the norm. This complexity is further enhanced when individuals migrate to new communities which have different cultural values. The next section of this review will discuss the process of acculturation for those children born to immigrant parents in Australia.

2.2 Acculturation and bicultural identities: growing up with two cultures

Acculturation has been defined as “those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups (Redfield, Linton, & Herskovits, 1936, p. 149).” This definition has been used for some time, and is still often cited and considered useful for its acknowledgement of change in both cultural groups coming into contact, rather than just the immigrant or minority group, and also allows for the rejection of, or resistance to different cultural elements (Sam, 2006). Past researchers and theorists considered the acculturation process to be linear and progressive in nature, arguing that increasing contact by immigrants with the ‘host’ culture would lead to those immigrants becoming increasingly like the members of that host culture. In contrast, contemporary theorists now argue that the acculturation process is generally non-linear, and multi-dimensional (Berry, 2005, 2006; Sam, 2006).

For instance, Berry (2005, 2006) argues that acculturation proceeds along two dimensions: the degree to which the individual maintains his or her original cultural identity, and the degree to which that individual participates in the cultural life of the new community. Berry claims that the degree of participation and maintenance of the two cultures can lead to four different acculturation strategies: *integration*, *separation*, *assimilation*, and *marginalisation*. The first two strategies involve the maintenance of the individual’s heritage culture. The difference between them is that *integration* also includes, at the same time, the individual seeking significant interaction with the cultural practices and members of the new culture, while *separation* consists of the rejection or avoidance of interactions with other cultures. In contrast, the latter two strategies refer to instances when individuals do not wish

to, or are unable to, maintain their heritage culture. *Assimilation* refers to those instances when significant interaction with the new culture is sought, while *marginalisation* refers to instances when there is little interest or opportunity to interact with the host culture. Research on this model has revealed that integration is the strategy most preferred by migrants, refugees, and indigenous people (Berry, 2006), and that integration is associated with the most adaptive outcomes (Ward, 2008). Of course, acculturation strategies are dependent on the attitudes and intercultural relations within the dominant host culture; for instance, integration is only possible where the dominant society is open and supportive towards cultural diversity (Berry, 2006; Sam, 2006).

Children from immigrant families in Australia generally grow up in homes in which the values of their parent's heritage culture are maintained and promoted (Phinney, Berry, Vedder, & Liebkind, 2006). For instance, research has found that, where consistent with the heritage culture, collectivist values continue to be passed on from one generation to the next in immigrant families living in countries with individualist value systems (Oppedal, 2006). At the same time however, children are constantly in contact with individuals and institutions of the majority culture. Children attend school and health care institutions, and interact with friends and neighbours, all of which provide opportunities to learn about the behaviours, rituals, values and traditions of the new culture as well as their own (Oppedal, 2006). It has been found that as immigrant children develop they are increasingly able to perform effectively and comfortably in both their heritage culture and the mainstream culture, and usually develop friendships with peers from both groups (Oppedal, 2006; Phinney et al., 2006).

Although the developmental niche of the family system is generally the most influential setting in the child's early development, as the child grows into adolescence the external social world increases in importance and influence. As identity formation is one of the major tasks of adolescence, researchers and theorists have investigated how the formation of ethnic identity is integrated as part of this process (Liebkind, 2006; Oppedal, 2006; Phinney, 1989). It has been proposed that there are four possible outcomes of ethnic identity formation, which mirror Berry's acculturation strategies: Integration involves high levels of both cultural identities (also referred to as bicultural identity). Separation consists of strong identification with the heritage culture and low levels of identification with the majority culture. Assimilation involves low ethnic identity but high levels of majority society identity. Finally, Marginalisation refers to instances when there is an expression of low levels of identification with both the heritage and majority cultures (Phinney, 1989).

Very few researchers have thus far investigated the development of cultural identity in Australian adolescents. In a multinational study of the acculturation, identity and experiences of immigrant adolescents it was found that immigrant adolescents in Australia, which predominantly included children of immigrants from Vietnam, China and The Philippines, had very strong ethnic identities, and weaker but still quite strong national identities (Phinney et al., 2006). These researchers also found a strong positive correlation between ethnic identity and national identity, suggesting that the Australian immigrant youth studied generally formed a bicultural identity. Thus, these results suggest that the heritage culture is still the primary influence of even the second-generation immigrant adolescents included in this study, although these adolescents are still aware of, influenced by, and identify with the values, beliefs and behaviours of the majority culture in Australia. The lack of

research into ethnic identity formation in Australian adolescents is problematic however, as the multinational study described considerable variation across nations and within nations across cultural groups. The dynamic nature of the acculturation process, and of culture itself, also means that findings are likely to change over time. Clearly this is an area that requires further investigation.

2.3 Culture and the expression and regulation of emotion

Just as culture places constraints on other behaviours, it influences the experience and expression of emotions. The emotions we choose to express, and which are acceptable to express, are heavily influenced by our cultural values and context. Past research indicates that when individuals are alone and free to respond without social constraint in a situation which elicits strong emotions, they will- regardless of their culture or gender- express these emotions using similar facial expressions. However, this research has also shown that the same individuals will alter their facial expressions to be more consistent with culturally accepted norms when they are in situations that place social constraints on them (Ekman, as cited in Matsumoto, 2007).

Cultural norms and values in regards to the expression of emotions are influenced by the social organisation of that culture. For instance, cross-cultural researchers have found that interdependent cultures discourage emotion expression where it may threaten in-group harmony by offending others (Kitayama et al., 2000; Markus & Kitayama, 1991; Matsumoto, 1993, 2006). In contrast, independent cultures highly value self-expression as a marker of individual freedom which, along with individuality, are core ideals of individualistic cultures (Kim & Sherman, 2007).

There is, to date, strong empirical support for cultural differences in the expression of emotions (Matsumoto, Yoo, Fontaine, et al., 2008; Safdar et al., 2009; van Hemert et al., 2007). For instance, Kim and Sherman (2007) surveyed Americans of European and Asian descent with the aim of measuring the extent to which they consider self-expression to be important. Results of this study indicated that European Americans placed significantly higher value on the expression of thoughts and emotions than did Americans of Asian descent. In further support of cultural differences, Denham, Caal, Bassett, Benga and Geangu (2004) conducted a qualitative study which explored the cultural variations in the antecedents, experience and expression of emotions in focus groups with American, Hispanic-born, Japanese-born, and Romanian participants. They found that Japanese participants, in comparison to the other groups, found discussing emotions more difficult and more often emphasised the regulation of the expression of emotions in their discussions. They mentioned that they tried not to show emotions and downplayed their means of expressing emotions. In contrast, participants in other groups felt openness in this area. In another study conducted in the United States, Matsumoto (1993) compared the display rule attitudes of individuals of different ethnic origins. He found that Caucasians more often rated the display of emotions as appropriate compared to individuals from other ethnic groups, while those of Asian ethnicity were less likely than others to rate the display of emotions as appropriate.

Van Hemert et al. (2007) conducted a meta-analysis of 190 cross-cultural studies published between 1967 to 2000. As part of this analysis they investigated culture-level correlates with the expression of emotion. In particular they postulated that emotion expression would be influenced by three types of variables: ecological variables, socio-political context variables, and psychological characteristics of

societies. In general, they found that variables that are more likely to be associated with Western societies were related to increased emotion expression. For instance a higher percentage of service workers (which is argued to indicate higher levels of independence), higher levels of democracy and human rights, and higher levels of individualism were all associated with higher levels of emotion expression. However, temperature, economic wealth and the value dimension of autonomy were not associated with emotion expression. Importantly, these researchers also investigated the extent to which cross-cultural differences in emotional variables was a result of method-related factors, such as statistical artefacts and bias, or of culture-level factors. They found that while correcting for method-related factors reduced the effect size considerably, culture-level factors still explained a substantial portion of the observed variance between cultures.

Given that collectivist cultures place less value on the expression of emotion, and seem to be less expressive of emotion than those from individualist cultures, it seems reasonable to expect that expressive suppression may be more often used as an ER strategy in these cultural groups compared to individualist cultures. Nevertheless, few studies have directly investigated cross-cultural differences in the use of ER strategies. One study which investigated these differences on a national level compared the use of cognitive reappraisal and expressive suppression in 23 countries (Matsumoto, Yoo, Nakagawa, & Members Multinational Study of Cultural Display Rules, 2008). They found that interdependent cultures that emphasised the maintenance of social order tended to report more frequent use of expressive suppression. However, independent cultures that did not place high importance on the maintenance of social order and valued individualism and egalitarianism tended to have lower scores on suppression.

Studies of individual differences in the use of ER strategies have also provided evidence of more frequent use of suppression in people from Asian backgrounds or individuals who hold Asian values. For instance, Gross and John (2003) found that Asian Americans reported higher frequency of suppression use than European Americans, although their use of suppression was similar to that of African Americans and Latino Americans. These authors therefore attributed the more frequent use of suppression to reduced power and social status of these minority groups, rather than cultural values. However, more recent studies which have investigated habitual suppression use amongst cross-national samples suggested that the higher rate of suppression use may indeed be related to cultural values rather than minority status. For instance, Soto et al. (2011) compared habitual suppression use in European American and Hong Kong Chinese undergraduate students and English and John (2013) compared European American and Chinese students. Both studies found higher rates of suppression use in the Asian samples. Thus, minority status does not fully explain the more frequent use of suppression found in Asian groups. Furthermore, evidence is beginning to emerge that suggests an acculturation effect on the use of suppression in Asian immigrants living in Western cultures. English and John (2013) found that the Chinese students included in their study reported higher use of suppression than the Asian American students. Moreover, John and Eng (2014) cite findings that Asian Americans reported greater use of suppression than European Americans, and that suppression use decreased in the immigrant group the longer they had lived in the United States.

Butler et al. (2007) found that individuals who hold predominantly Asian (interdependent) values were more likely to report higher rates of suppression use than individuals with predominantly American (individualist) values. Interestingly,

they also found that the negative effects of expressive suppression in regards to social functioning were moderated by cultural values. They found that experimentally elicited suppression resulted in reduced interpersonal responsiveness during face-to-face interactions, negative partner perceptions, and hostile behaviours in Americans holding Western European values; however these deleterious effects were reduced when Americans with more Asian values suppressed. It should be noted however, that in a similar study investigating the relationship between suppression and relationship satisfaction in European American, Asian American and Chinese participants, English and John (2013) found that ethnicity did not moderate this relationship. Thus, further research is required to investigate this area to further assess whether the negative effects of suppression on social functioning are found across cultures.

In summary, research thus far supports the argument that individuals from collectivist cultures are less likely to express their emotions, and value expression less than individuals from individualist cultures. It has also been found that collectivist cultures reported more frequent use of expressive suppression as an ER strategy. Only one study (John & Eng, 2014) has investigated the effect of acculturation on the cultural differences found in the use of expressive suppression, with the findings suggesting that acculturation may reduce this difference. As noted previously in Chapter One, more frequent use of expressive suppression to regulate emotions has been linked to a number of negative consequences, including higher rates of depression in Western samples. However, it is possible that the negative effects of expressive suppression found amongst these populations may be in part due to the value of emotional expression which is shared in this cultural context. In

the following section, the cross-cultural differences in the association between expressive suppression and depression will be considered.

2.4 Culture, emotion regulation and depression

Depression is a pervasive psychological disorder with rates so high it is ranked as the 11th most common cause of premature death and disability globally (calculated as disability adjusted life years; Institute for Health Metrics and Evaluation, 2013).

The prevalence of depression varies considerably across cultures. For instance, whilst Western countries such as the United States have reported prevalence rates of depression as high as 16.9%, some Asian countries such as Japan have prevalence rates as low as 3% (World Federation for Mental Health, 2012). However, it is difficult to compare rates of depression cross-nationally due to the lack of standard diagnostic screening criteria and cultural differences in the expression of depression as well as the stigma related to symptom reporting (Ryder et al., 2008; World Federation for Mental Health, 2012). Australian statistics relating to depression rates across cultural groups are difficult to find, however the Australian Bureau of Statistics (2008a) have reported that rates of affective disorders amongst those born in Australia (6%) are marginally higher than amongst those born overseas (5.1%).

As outlined in Chapter One, in Western samples, increased use of expressive suppression has been linked to increased psychopathology, including depression. However, there is evidence to suggest that the use of expressive suppression is more common within cultures with collectivist value systems such as Asian cultures, than in individualist cultures such as Australia. Despite this, very little research to date has investigated the relationship between the use of expressive suppression as an emotion

regulation strategy and depression in individuals from Asian, or other collectivist cultures. The research that has been conducted seems to support the idea that the negative effects of expressive suppression found amongst Western samples may be due to the value of emotional expression which is shared in this culture, and the interpersonal consequences of going against the expressive norms of this cultural context (Soto et al., 2011; Su et al., 2013).

As previously mentioned, Matsumoto et al. (2008) compared the use of reappraisal and suppression in 23 countries and found that individuals from interdependent cultures that emphasised the maintenance of social order reported more frequent use of expressive suppression, while those from independent cultures that did not place high importance on the maintenance of social order tended to have lower scores on suppression. These researchers also investigated the relationships between ER and adjustment in the population. They measured maladjustment by compiling country-level data on incidence rates of depression, anxiety, suicide, crime, and substance abuse. They found that, across all cultures, suppression was negatively correlated with happiness variables, indicating that countries with higher suppression levels had significantly lower levels of citizen happiness. Interestingly, suppression was also negatively correlated with maladjustment indicating that countries with more suppression tend to have lower rates of citizen maladjustment. On further investigation the researchers found positive correlations between happiness indices and maladjustment variables, suggesting that those countries with higher rates of citizen happiness also had higher rates of depression and anxiety disorders. This finding seems somewhat contradictory, however as this is population level data, it is possible that one segment of the population is happier than the norm, while another displays more maladjustment. Another possible explanation for this

result is that one of the consequences of high levels of emotional and expressive freedom and individuality and less value on social order is the promotion of high levels of both positive and negative adjustment within the population, or a large range of adjustment across both extremes. Although it is difficult from these results to deduce what is happening at an individual level, the authors do suggest that the link between the use of ER strategies and depression may not be consistent for all cultures.

One study which did investigate cross-cultural differences in the relationship between suppression and depression at an individual level is that of Soto et al. (2011). These researchers measured the self-reported habitual use of suppression, depressive symptomatology and life satisfaction amongst European American and Hong Kong Chinese participants. They found that increased use of suppression was associated with increased depressive symptoms and decreased life satisfaction in the European American participants, however these relationships were not present in the Hong Kong Chinese participants.

Kitayama and colleagues (Kitayama et al., 2000; Kitayama, Mesquita, & Karasawa, 2006) reasoned that by acting in a way which is congruent with the dominant mode of being of one's cultural group an individual is likely to fit in and develop better social relationships within their cultural community. They proposed that this should be conducive to a state of well-being within the individual and lead to the experience of increased positive emotions. To test this reasoning they recruited university students from the United States and Japan who reported how frequently they experienced various emotional states in their daily life. The emotional states included were chosen to represent interpersonally disengaged

positive emotions (such as feeling proud or superior), interpersonally disengaged negative emotions (such as feeling angry or frustrated), interpersonally engaged positive emotions (such as friendly feelings or respect), interpersonally engaged negative emotions (such as shame or guilt), and general positive emotions (such as calm or elated). They predicted that general good feelings would be associated with independence and interpersonal disengagement in the United States, and with interdependence and interpersonal engagement in Japan. In support of their hypothesis, it was found that the reported frequency of general positive emotions was positively associated with the reported frequency of interpersonally disengaged positive emotions for the United States participants, and with interpersonally engaged positive emotions in the Japanese participants.

Su et al. (2013) expanded on this research to investigate whether the association between suppression and depression previously found in Western samples differed depending on cultural background and the type of emotion being suppressed. They postulated that for individuals from cultures promoting independent cultural backgrounds, suppression of socially disengaging emotions (which affirm an independent self-view), but not socially engaging emotions, would be associated with depressive symptoms. In contrast they argued that due to the lower value placed on the expression of the inner state for effective functioning in interdependent cultures, the relationship between suppression and depression would be weaker or not present in these individuals regardless of the type of emotion being suppressed. Their results, comparing European American and Chinese Singaporean undergraduate students, supported this hypothesis, with cultural differences in the suppression-depression relationship present only for socially disengaging emotions. Higher frequency of suppression of socially disengaging, but not socially engaging,

emotions was related to depressive symptoms in the European American group, but no association was found between suppression and depressive symptoms for the Chinese Singaporean group for either type of emotion.

Research with Western samples has generally found that compared to non-depressed individuals, depressed individuals report and display reduced emotional reactivity in response to both negative and positive emotion eliciting stimuli. Chentsova-Dutton et al. (2007) investigated the possibility that the emotional symptoms associated with depression may represent deviations from the culturally sanctioned norms of emotional expression rather than from a universal pattern of healthy emotional functioning that applies across cultures. In an experimental study these researchers presented depressed and non-depressed participants from either European American or Asian American cultural backgrounds with sad and amusing films. They found that European Americans with depression displayed reduced emotional responding to the sad film; however, in contrast, depressed Asian Americans displayed enhanced emotional responding to the film. These results seem to suggest that, for each of these cultural groups, depressed participants demonstrated the culturally inappropriate emotional response. In another study, Okazaki and Kallivayalil (2002) found that Asian American students who deviated from the culturally normative belief that it is inappropriate to express and experience depression were also more likely to experience increased depressive symptomatology. Whether being depressed results in a failure to fulfil cultural norms regarding emotional expression, or whether deviating from cultural norms may result in depression, is not clear from these findings. However these results do suggest that the relationship between depression and emotional responding does vary

depending on cultural values in regards to healthy emotional functioning (Chentsova-Dutton & Tsai, 2009).

2.5 Summary

An increasing body of research has found that the use of different ER strategies is associated psychopathology and well-being, with particular links found between the use of expressive suppression and internalising disorders such as depression in Western populations. While there is lower prevalence of depression in East Asian countries such as China and Japan, there is also evidence that individuals from these cultures are likely to use expressive suppression more often than individuals from more individualistic cultures such as the United States and Australia. Evidence is emerging which suggests that the relationship between suppression and negative outcomes generally, and depressive symptomatology in particular, does differ depending on cultural values in regards to emotional expression and healthy emotional responding. Research on younger samples is nonetheless clearly needed as all of the research reviewed here on this topic has investigated adult samples.

The vast majority of research conducted in the ER field has focussed on periods of infancy and early childhood, or adulthood, and few studies that have focussed on late childhood or adolescent periods have explored the development of ER strategy use within Gross' theoretical framework. Thus research which focuses on these developmental periods is required to further our understanding of the developmental trajectory of ER development, and, given the high prevalence of internalising disorders amongst the adolescent population, the relationship between ER use and these disorders in an adolescent population also requires investigation.

CHAPTER 3: EMPIRICAL MANUSCRIPT, STUDY ONE

Cross-cultural differences and maturational change in emotion regulation through childhood and adolescence

Preamble

The following paper presents Study One of the thesis which aimed to establish whether cross-cultural differences in the use of expressive suppression, which have been found in adult studies described in Chapter Two, would be found in a child and adolescent sample. A bicultural group, as well as an Australian group, was included in the study to examine and compare the maturational change in the use of suppression with age. This question was examined through the use of a prospective longitudinal design, with data collection taking place over three, yearly, time-points.

A bicultural sample was selected for inclusion for both convenience and empirical reasons. Culture is a complex and ever changing concept. It is neither homogenous nor static within a national context, and it is even less so when considering dynamics within a multicultural society such as Melbourne, Australia (Matsumoto & Juang, 2004). For cross-cultural research to remain valid a body of work which uses a variety of techniques and draws samples from a variety of contexts is required. Therefore it is important for research to be conducted both across and within national contexts. What is found in a cross national context cannot be assumed to apply to similar immigrant or ethnic groups within nations (Kitayama & Markus, 1994; Matsumoto & Juang, 2004).

One of the aims of this research was to explore differences found between cultures relating to the relationship between ER use and depression with the ultimate aim of providing information that can assist in building culturally informed clinical

practice within an Australian context. As a multicultural nation, it is important that clinicians are aware of how the cultural background and the acculturation experience of their clients may affect their work. This work aims to inform clinicians working in such a multicultural space.

It was similarly felt to be important to focus this research on a child and adolescent population given the significance of adolescence as a stage of transition from childhood to adulthood, and the changes to be expected through this period in preparation for the responsibilities ahead. Adolescence is also marked by an increase in prevalence of psychopathology. Given the research outlined in Chapter One regarding the links that have been found between the use of suppression and maladjustment, it was considered important to first establish the developmental path in the use of both expressive suppression and cognitive reappraisal at a time when disorders such as anxiety and depressive disorders are just emerging.

Data for both Study One and Study Two of this thesis have been drawn from a larger study investigating many correlates of Emotion Regulation. In particular the data used was collected in the first three rounds (of an eight year study) from 2003 to 2006.

The paper is presented in the form of a manuscript which has been submitted for publication to *Emotion*. The format of the manuscript complies with journal requirements, including the spelling which is consistent with USA English, in contrast to the main body of the thesis; however, the tables and figures have been integrated with the text for improved readability. Study approval letters, parent and adolescent explanatory statements and consent forms, and questionnaires (with the exception of copyrighted material) are contained in Appendices A through C. The correlation matrix for all variables included in Studies One and Two is included in Appendix D.

Monash University

Declaration for Thesis Chapter Three

Declaration by candidate

In the case of Chapter Three, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution (%)
Literature review, conceptualization of research questions, data analysis (in collaboration with statistical advisor), preparation of written manuscript.	80%

The following co-authors contributed to the work:

Name	Nature of contribution
A/Prof Eleonora Gullone	Conceptual input, project design, review of study drafts, general supervisory input
A/Prof Nikki Rickard	Review of study drafts, general supervisory input

The undersigned hereby certify that the above declaration correctly reflects the nature and extent of the candidate's and co-authors' contributions to this work.

Candidate's Signature		Date 13/03/2014
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Main Supervisor's Signature		Date 7/3/2014
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Cross-Cultural Differences and Maturational Change in Emotion Regulation through
Childhood and Adolescence

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Abstract

A number of adult studies have found evidence of cultural differences in the use of expressive suppression to regulate emotions, however none of these studies have investigated whether these findings generalize to children and adolescents, and little is known about maturation differences in the use of emotion regulation strategies through adolescence. The current study aimed to address these questions by comparing use of cognitive reappraisal and expressive suppression over three time points in Asian Australian and Australian children and adolescents aged 8 to 16 years at recruitment ($N= 801$; 353 boys, 448 girls). As hypothesized, the Asian Australian group reported greater frequency in the use of suppression, however no difference was found in the use of reappraisal. The Asian Australian group also displayed a greater decrease over time in the use of suppression than the Australian group. These results suggest that as Asian Australian children develop and their sphere of influence widens to include more peers and outside institutions, they move from reflecting the values regarding reduced emotional expression which are promoted in the family culture of origin, to increased emotional expression which is valued in Western cultures. Overall the results from this study emphasize the influence of culture on the regulation of emotions, and highlight the caution required when generalizing results based on Western samples to people from divergent cultural backgrounds in the area of emotion regulation.

Keywords: Emotion Regulation, Expressive Suppression, Cognitive Reappraisal, Cross-Cultural Differences, Adolescence.

Cross-Cultural Differences and Maturation Change in Emotion Regulation through Childhood and Adolescence

Emotion regulation (ER) refers to the use of processes and strategies to modify the course and expression of emotional arousal in order to attain one's goals (Calkins, 1994; Campos et al., 1994; Dennis, 2007; Gross, 1998b). These strategies may involve internal or external resources, may serve to decrease, maintain or increase components of the emotional response, and both positive and negative emotions may be regulated (Gross, 2001; Thompson, 1994). Over the past decade there has been a flood of research interest in emotion regulation within the field of psychology (Gross, 2013). This research has focused on a vast array of topics, including individual differences in the use of ER strategies and the affective, social, and psychological consequences of the habitual use of different strategies (Butler et al., 2007; Gross, 2013; Gross & John, 2003; Moore et al., 2008; Nezlek & Kuppens, 2008; Richards & Gross, 2000; Srivastava et al., 2009).

Guiding much of the research in the area is Gross's (1998b, 2001) process model of ER. This model follows the process of emotion generation to identify five points at which ER can take place. These five points are situation selection, situational modulation, attentional deployment, cognitive change, and response modulation. Gross argues that a distinction can be made between *antecedent-focused* strategies, those which are employed before behavioral and physiological response tendencies are fully activated, and *response-focused* strategies, which are employed once an emotional response is already underway. As antecedent-focused strategies target the emotion generative process very early and principally concern whether response tendencies are triggered, while response-focused strategies target the

process once the response tendencies have already been activated, Gross (1998a, 2001; Gross & John, 2003) predicted that the timing of the ER response would have very different consequences for the regulator.

To assess this prediction, two ER strategies have been studied extensively: cognitive reappraisal, which involves changing a situation's meaning in order to modify its emotional impact, and expressive suppression which involves modifying our expressive behavior (Gross & Thompson, 2007). The results of this research in Western adult populations suggest that the habitual use of reappraisal is linked to positive outcomes such as increased experience of positive emotion and decreased experience of negative emotion (Gross & John, 2003; Nezlek & Kuppens, 2008). In contrast, expressive suppression is consistently associated with negative outcomes, such as increased experience of negative emotion and decreased experience of positive emotion (Dagleish et al., 2009; Gross & John, 2003; Nezlek & Kuppens, 2008), lower social functioning and poorer social support (Butler et al., 2003; English & John, 2013; Gross & John, 2003; Srivastava et al., 2009), decreased self-esteem (Nezlek & Kuppens, 2008) and increased rates of psychopathology (Aldao et al., 2010; Beblo et al., 2012; Moore et al., 2008).

Despite increased research interest in ER, very little research to date has investigated cross-cultural differences in the use of cognitive reappraisal and expressive suppression. As with other behaviors, cultural background places constraints on expression and communication of emotions through display rules (Matsumoto, 1990). The emotions we choose to express, and which are acceptable to express, are heavily influenced by our cultural values and context (Mesquita & Albert, 2007). Cultural norms and values relating to the expression of emotions are

influenced by the social organization of that culture. For instance, cross-cultural researchers have found that interdependent cultures, including East Asian nations, discourage emotion expression where it may threaten in-group harmony by offending others (Kitayama et al., 2000; Markus & Kitayama, 1991; Matsumoto, 1993, 2006; Wei, Su, Carrera, Lin, & Yi, 2013). In contrast, independent cultures, including Western industrialized nations, highly value self-expression as a marker of individual freedom which, along with individuality, are core ideals of individualistic cultures (Kim & Sherman, 2007; Wei et al., 2013).

There is good empirical support for cultural differences in the expression of emotions (Matsumoto, Yoo, Fontaine, et al., 2008; Safdar et al., 2009; van Hemert et al., 2007). For instance, Kim and Sherman (2007) surveyed Americans of European and Asian descent with the aim of measuring the extent to which they consider self-expression to be important. Results of this study indicated that European Americans placed significantly higher value on the expression of thoughts and emotions than did Americans of Asian descent. In addition, a meta-analysis investigating cross-cultural differences in emotion found that cultures with higher levels of individualism also had higher levels of emotion expression (van Hemert et al., 2007).

Given that interdependent cultures place less value on the expression of emotion, and seem to be less expressive of emotion than those from independent cultures, it seems reasonable to expect that expressive suppression may be more often used as an ER strategy in these cultural groups compared to individualist cultures. Nevertheless, few studies have investigated cross-cultural differences in the use of ER strategies. One study which investigated these differences on a national level compared the use of cognitive reappraisal and expressive suppression in 23

countries (Matsumoto, Yoo, Nakagawa, et al., 2008). They found that interdependent cultures that emphasized the maintenance of social order tended to report more frequent use of expressive suppression. However, independent cultures that did not place high importance on the maintenance of social order and valued individualism and egalitarianism tended to have lower scores on suppression.

Studies of individual differences in the use of ER strategies have also provided evidence of more frequent use of expressive suppression in people from Asian backgrounds or individuals who hold Asian values. For instance, Butler et al. (2007) found that individuals who hold predominantly Asian (interdependent) values were more likely to report higher rates of expressive suppression use than individuals with predominantly American (individualist) values. Similarly, Gross and John (2003) found that Asian Americans reported higher frequency of expressive suppression use than European Americans, although their use of suppression was similar to that of African Americans and Latino Americans. The authors therefore attributed the more frequent use of expressive suppression to minority status, rather than cultural values.

However, results of studies which have investigated habitual suppression use amongst cross-national samples suggest that the higher rate of suppression use may indeed be related to cultural values rather than status. For instance, Soto et al. (2011) compared habitual suppression use in European American and Hong Kong Chinese undergraduate students and English and John (2013) compared European American and Chinese students. Both studies found higher rates of suppression use in the Asian samples. Thus, minority status does not fully explain the more frequent use of suppression found in Asian groups. Furthermore, English and John (2013) also found that the Chinese students reported higher use of suppression than a group of Asian

American students, and John and Eng (2014) found that, Asian Americans reported greater use of suppression than European Americans, and that suppression use decreased in the immigrant group the longer they had lived in the United States. These findings suggest an acculturation effect on suppression use. In those studies which investigated differences in the use of reappraisal, no differences were found between cultural groups (English & John, 2013; Gross & John, 2003; Soto et al., 2011).

All of these studies which have investigated cross-cultural differences in the use of expressive suppression and cognitive reappraisal have compared adult samples. To our knowledge no study has yet investigated cross-cultural differences in ER strategy use in a preadolescent or adolescent sample. This reflects the neglect of this group in the wider ER literature which has typically focused on periods of infancy, early childhood and adulthood (Gullone et al., 2010). Furthermore, few studies focusing on late childhood or adolescence have explored the development of ER strategy use within Gross' theoretical framework. This oversight is interesting given that this period of development marks the cognitive, emotional and social transition from childhood to adulthood. It is a time which is widely seen as emotionally turbulent and shows an increase in the onset of psychological disorders such as anxiety and depression (E. J. Costello, Copeland, & Angold, 2011), both of which can be linked to maladaptive ER (Aldao et al., 2010).

Gullone et al. (2010) investigated the use of cognitive reappraisal and expressive suppression during late childhood and adolescence in an Australian sample. Using a longitudinal design to assess the developmental pattern of the use of the two strategies over three years, they found that over time participants reported

less use of expressive suppression. Moreover, the use of this strategy was less frequent in older than in younger participants. Interestingly, older participants also used reappraisal less often than younger participants, but use of reappraisal was stable over time. This result is difficult to explain as an increase in the use of reappraisal with greater experience and maturity would be expected; however Gullone et al. (2010) proposed this may indicate that by late childhood, stability in reappraisal use has already developed, which would provide support for those who argue that ER is predominantly trait-like in nature (Cole et al., 2004).

Thus, the limited research that has been conducted on preadolescent and adolescent samples suggests that, as children develop, they use suppression less often to regulate their emotions, while there is little change in the use of reappraisal (Gullone et al., 2010). However, further research is required to verify these findings, and research using cross-cultural samples would be valuable in exploring the generalizability of these findings to non-Western cultural groups. In addition, it is unclear if the developmental change in the use of ER strategies differs for bicultural children and adolescents. It is conceivable that any differences in the use of suppression that are present in younger children may diminish as the child moves further into adolescence and the developmental niche expands to include more individuals and institutions of the dominant culture. As yet no research has been published which has explored this question in this age group.

The main aim of this study was to conduct a cross-cultural comparison of the use of expressive suppression and cognitive reappraisal in a preadolescent and adolescent Australian sample. The two groups to be compared are Asian Australian and Australian children and adolescents, as defined by parent's birthplace. A second

aim of the study was to investigate any differences between these groups in the developmental trajectory of ER strategy use.

It was hypothesized that Asian Australian children and adolescents would report greater use of expressive suppression than the Australian group, but that there would be no difference in the use of cognitive reappraisal. It was expected that use of expressive suppression would decrease as children aged; however the rate of change was predicted to be greater for Asian Australian children as they become more involved with peers and institutions of the dominant Western culture and acculturation takes place.

Method

Participants

The sample for the current study ($n = 801$) was drawn from a larger study of children and adolescents recruited from 13 primary schools, 7 secondary schools and 2 “P-12” schools (which enroll both primary and secondary aged children) in metropolitan Melbourne, Australia ($N = 1,392$). As part of the larger study examining various aspects of emotion regulation and its correlates, participants were assessed at six time points. Data for this study were drawn from the first three time points of the overall study as attrition from time point four meant a large number of Asian Australian participants were lost at this time. The three time points, referred to as T1, T2, and T3, occurred approximately one year apart. Response rates, determined by the number of consent forms returned on which parents consented to their child’s participation compared to those on which parents refused their child’s

participation, were approximately 80% at T1, 84% ($n = 1,174$) at T2, and 77% ($n = 1,073$) at T3.

For this study, students who indicated that both parents were born in Australia (Australian group) or that both parents were born in the major regions of North-East Asia (T1 $n = 23$), South-East Asia (T1 $n = 235$) or Southern or Central Asia (T1 $n = 104$), or a combination of two of these regions (T1 $n = 29$; Asian Australian group) as classified by the Standard Australian Classification of Countries (SACC; Australian Bureau of Statistics, 2008b), were included. Of the Asian Australian group, 220 (56.4%) indicated they had always lived in Australia, 38 (9.7%) indicated they had lived in Australia for 11-15 years, 77 (19.7%) had lived in Australia for 6-10 years, and 55 (14.1%) had lived in Australia for 5 years or under. One participant did not answer the question. As a means of measuring acculturation, participants were asked to indicate how much they had adopted the Australian way of doing things. Of the Asian Australian participants 10 (2.6%) responded 'not at all', 143 (36.6%) indicated 'a little', 143 (36.6%) said 'much', and 95 (24.3%) said 'very much'.

The characteristics of the final sample and results of between group comparisons are presented in Table 1 which indicates that the Asian Australian participants were significantly younger than the Australian participants. Participants were asked to supply their parents' occupation, however a large number did not complete these items. Therefore, as a measure of socio-economic background, residential postcodes were rated according to the Socio-Economic Index For Areas (SEIFA; Australian Bureau of Statistics, 2001) index for Advantage/Disadvantage. Higher ratings on this index indicate higher levels of advantage. Where a participant had not supplied their residential address or postcode at T1, it was ascertained from

Time 4 (T4; of the larger study) when demographic surveys were re-administered. For a small number of participants who did not supply this information at T1 or T4 ($n = 37$) the postcode of their school address was substituted for residential address, as most government school students in Victoria are required to live in the neighborhood area of their school. It can be seen in Table 1 that the Asian Australian group lived in significantly more disadvantaged residential areas than Australian participants suggesting lower socio-economic status (SES).

Table 1.
Characteristics of the Sample

Variable	Australian	Asian Australian	Between group comparisons
Time 1, N	410	391	
Male, n (%) ^a	187 (45.6)	166 (42.5)	
Female, n (%)	223 (54.4)	225 (57.5)	
Age, M (SD)	12.27 (1.58)	11.82 (1.57)	$t(799)=4.08^{***}$
Age Range	9.05-15.49	8.74-15.50	
Time 2, N	336	341	
Male, n (%)	158 (47.0)	143 (41.9)	
Female, n (%)	178 (53.0)	198 (58.1)	
Age, M (SD)	13.28 (1.61)	12.82 (1.52)	$t(675)=3.85^{***}$
Age Range	10.07-16.51	9.82-16.34	
Time 3, N	320	309	
Male, n (%)	144 (45.0)	129 (41.7)	
Female, n (%)	176 (55.0)	180 (58.3)	
Age, M (SD)	14.37 (1.56)	13.95 (1.57)	$t(627)=3.41^{**}$
Age Range	11.18-17.69	10.86-17.38	
Demographics (Time 1)			
SEIFA rating ^b , M (SD)	994.36 (81.27)	950.26 (60.15)	$t(747.56)=8.72^{***}$
English language, n (%)	395 (97.1)	116 (30.1) ^c	

Note. ^aValid percent used throughout table. ^b2001 version of SEIFA was used as it was current at time of data collection. ^cFive participants did not indicate language spoken at home.
** $p < .01$, *** $p < .001$.

Materials

Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA). The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) comprises 10 items assessing the ER strategies of cognitive reappraisal (6 items) and expressive suppression (4 items). The ERQ has been reported to have adequate internal consistency ($\alpha = .79$ for reappraisal and $.73$ for suppression) and 3-month test–retest reliability ($r = .69$ for both scales) as well as sound convergent and discriminant validity with both younger and older adults (Gross & John, 2003; John & Gross, 2004). The ERQ has been translated to a number of languages and validation studies have demonstrated consistent reliability and convergent and discriminant validity and stable factor structure across various cultural samples (Balzarotti, John, & Gross, 2010; Gross & John, 2003; John & Gross, 2004; Matsumoto, Yoo, Nakagawa, et al., 2008; Sala et al., 2012).

In this study, a revised version of the ERQ was used to enhance completion by children and adolescents (ERQ-CA; Gullone & Taffe, 2012). In this version the word emotion was replaced with feelings and item content was simplified (e.g., suppression: “I control my emotions by not expressing them” became “I control my feelings by not showing them”; reappraisal: “When I am faced with a stressful situation, I make myself think about it in a way that helps me stay calm” became “When I am worried about something, I make myself think about it in a way that helps me feel better”). In addition, the response scale was reduced from seven to five choices (1 = strongly disagree, 5 = strongly agree) to further simplify responding. Scores range from 4 to 20 on the suppression scale and from 6 to 30 on the reappraisal scale with high scores indicating more frequent use of the relevant ER strategy.

Psychometric analysis of the ERQ-CA in a sample of 1,745 children aged 9 to 16 years reproduced the two factors proposed by Gross and John (2003) and demonstrated adequate internal consistency ($\alpha = .81$ for reappraisal and $.69$ for suppression) and 1 year test–retest reliability (Gullone & Taffe, 2012). It also correlated in the expected directions with measures of temperament, depression, shame, guilt, empathy, and parental bonding (Gullone & Taffe, 2012; Jaffe, Gullone, & Hughes, 2010). Internal consistency of the reappraisal subscale was good for both groups of the current study (ranging from $\alpha = .81$ to $.84$ [Australian group] and $\alpha = .75$ to $.82$ [Asian Australian group]). The expressive suppression subscale demonstrated adequate internal consistency for the Australian group (ranging from $\alpha = .68$ to $.76$). This was slightly lower but still adequate, given the number of items, for the Asian Australian group at T1 ($\alpha = .64$), and comparable to the other group at T2 and T3 ($\alpha = .72$ and $.68$, respectively).

Demographics. Demographic information collected included questions regarding parent’s country of birth, parent’s occupation, languages spoken, and number of years the participant had lived in Australia. The participant’s report of the level of family acculturation to Australian culture was also measured on a four-point scale from 1 ‘not at all’ to 4 ‘very much’ (Herz & Gullone, 1999). This measure of acculturation was found by Ranieri and Klimidis (1994) to be a valid measure for assessing respondents’ participation in the Australian culture for Vietnamese Australian adolescents and demonstrated discriminant validity when compared to a range of acculturative variables such as length of time in Australia and cultural values.

Procedure

The study was approved by the University Ethics Committee, the state Department of Education and Training, and the Catholic Education Office. Only those schools whose principal consented to their involvement were included in the data collection process. Explanatory statements and consent forms were distributed by the researchers to children at school to be passed on to their parents. All children with parental consent, and who gave their own written consent, completed written questionnaires in small groups in a quiet room at school under the supervision of the researchers and a teacher from the school. Participation was voluntary and children were told they were free to withdraw from the study at any time. The measures were presented in a counterbalanced order at all time-points.

Results

To explore the differences between the two groups on the reported use of ER strategies over time, two random effects regression analyses were performed with expressive suppression and cognitive reappraisal as criterion variables. Random effects regression is a powerful statistical analysis which allows examination of both within- and between-person differences over time (Rabe-Hesketh & Skrondal, 2012; Rutter & Elashoff, 1994). The data met all assumptions and Stata v13 was used for all analyses.

The means and standard deviations for each cultural group for reappraisal and suppression at all three time-points are presented in Table 2. Suppression and

reappraisal appear to be used more frequently by Asian Australian participants than the Australian participants at all three time-points.

Table 2.
Means and Standard Deviations for Suppression and Reappraisal by Cultural Background for Each Time Point.

Variable	Australian <i>M (SD)</i>	Asian Australian <i>M (SD)</i>
Time 1	<i>n</i> = 410	<i>n</i> = 391
ERQ Reappraisal	20.68 (4.27)	21.24 (4.03)
ERQ Suppression	10.38 (3.12)	12.05 (3.05)
Time 2	<i>n</i> = 336	<i>n</i> = 341
ERQ Reappraisal	20.66 (3.66)	21.62 (3.44)
ERQ Suppression	10.25 (2.98)	11.53 (3.01)
Time 3	<i>n</i> = 320	<i>n</i> = 309
ERQ Reappraisal	20.20 (3.89)	21.41 (3.53)
ERQ Suppression	10.12 (3.05)	11.47 (2.81)

Random effects regression was used to model use of expressive suppression as measured by the ERQ suppression scale, as a function of age, cultural background and its interaction with age, acculturation, gender, and SEIFA score as a measure of socioeconomic status. It should be noted that, due to a high correlation found between acculturation and cultural background, the regression was performed both with and without the acculturation variable. As the results of both regressions were equivalent and controlling for acculturation was theoretically valid, this variable remained in the final model.

The estimated coefficients, standard error and 95% confidence interval for all variables included in the final regression are presented in Table 3. ERQ suppression scores were significantly higher in the Asian Australian group in comparison to the Australian group. Results also revealed that females reported significantly less use of suppression than males. Age, SES ratings, and acculturation were not significantly associated with suppression scores.

Table 3.
Random Effects Regression of ERQ Suppression Score on Age, Cultural Group and its Interaction with Age, Acculturation Score, Gender and SES Measure.

Independent variable	Coefficient	SE	95% Confidence interval	
			Lower Limit	Upper Limit
Age	-0.09	0.06	-0.20	-0.02
Cultural background	3.54**	1.05	1.48	5.59
Cultural background*Age	-0.17*	0.08	-0.33	-0.08
Acculturation	-0.07	0.13	-0.32	0.19
Gender (female)	-1.02***	0.17	-1.36	-0.69
SEIFA score	-0.00	0.00	-0.00	0.00
Intercept	13.03***	1.42	10.25	15.81

Notes. Based on 2088 observations of 794 participants across 3 time points

* $p < .05$, ** $p < .01$, *** $p < .001$

The results also indicate greater change in the use of suppression for the Asian Australian group in comparison to the Australian group in the predicted direction, as demonstrated in Figure 1. It should be noted however, that this was a weak effect.

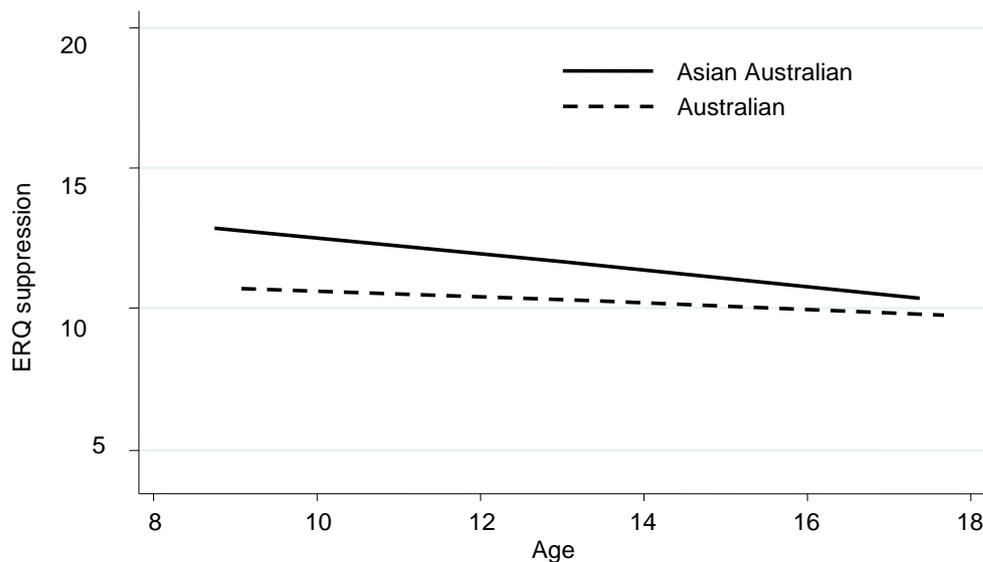


Figure 1.
Relationship between Suppression Scores and Age among Asian Australian and Australian Children and Adolescents

To investigate the relationship between culture and use of cognitive reappraisal, the random effects regression was repeated substituting the ERQ suppression scores with ERQ reappraisal scores as the dependent variable. Results revealed culture was not significantly associated with cognitive reappraisal scores, nor was the interaction between cultural background and age significant. The only variable significantly associated with cognitive reappraisal was age, with older children reporting significantly less use of reappraisal than younger participants. Acculturation, gender and SEIFA scores did not demonstrate an association with reappraisal scores. Table 4 contains the estimated coefficient, standard error and 95% confidence interval for all independent variables included in the regression.

Table 4.
Random Effects Regression of ERQ Reappraisal Score on Age, Cultural Group and its Interaction with Age, Acculturation Score, Gender and SES Measure.

Independent variable	Coefficient	SE	95% Confidence interval	
			Lower Limit	Upper Limit
Age	-0.20**	0.07	-0.35	-0.06
Cultural background	-1.05	1.38	-3.75	1.66
Cultural background*Age	0.14	0.10	-0.07	0.34
Acculturation	-0.07	0.17	-0.40	0.26
Gender (female)	0.41	0.22	0.03	0.84
SEIFA score	-0.00	0.00	-0.00	0.00
Intercept	23.21***	1.84	19.56	26.82

Notes. Based on 2088 observations of 794 participants across 3 time points

** $p < .01$, *** $p < .001$

Discussion

The aims of this study were to investigate cross-cultural differences, and differences in maturational change, in the use of expressive suppression and cognitive reappraisal in a preadolescent and adolescent Australian sample. As expected, the results of this study indicate that Asian Australian children in this sample used expressive suppression more frequently than did Australian children to regulate their emotions. However, it was also found, as hypothesized, that there was a greater decline in the use of suppression as the Asian Australian children moved through adolescence compared to that for the Australian children. In fact, the Australian group displayed no reduction in the use of suppression as they aged, which was unexpected. Consistent with predictions, there was no significant

difference between these groups in the use of cognitive reappraisal, nor was there a significant maturational difference between the groups in the use of reappraisal.

These results support the findings of previous research and indicate that cultural background is associated with the habitual use of expressive suppression. A number of studies have now demonstrated that participants from an Asian cultural background are more likely to employ suppression in order to regulate their emotions than those from Western cultural backgrounds (Butler et al., 2007; English & John, 2013; Gross & John, 2003; Soto et al., 2011). However, as far as we are aware this is the first study which has demonstrated these findings in a child and adolescent sample. While studies investigating cultural differences in the use of reappraisal are rare, in those which have, no cultural differences have been reported (English & John, 2013; Gross & John, 2003; Soto et al., 2011). The current findings therefore support previous research performed in an adult population and demonstrate their relevance to children and adolescents.

The developmental trajectory of bicultural children is still largely under-researched. As far as we are aware, this is also the only study which has investigated cross-cultural differences in the developmental course in use of the ER strategies reappraisal and suppression through adolescence. Adolescence is a period which is marked in Western cultures by increased individuation from parents and increased influence of peers and external institutions. A key developmental goal of adolescence is identity formation in preparation for the increased responsibilities of young adulthood (Erikson, 1965). Therefore, it was predicted that as Asian Australian children develop through adolescence and their developmental niche expands to include more influences of the dominant Western host culture, a change

might be seen in the use of ER strategies accordingly. It was thus expected that the use of suppression, which previous studies have found to decline with age through adolescence (Gullone et al., 2010), would decrease more markedly in the Asian Australian group than in the Australian group. As expected, results indicated a trend towards a greater decrease in the use of suppression in the Asian Australian group in comparison to the Australian group.

Previous research has found that children from immigrant families in Australia generally grow up in homes in which the values of their parent's original culture are maintained and promoted (Phinney et al., 2006). At the same time however, children are constantly in contact with individuals and institutions of the majority culture. Children attend school and health care institutions, and interact with friends and neighbors, all of which provide opportunities to learn about the behaviors, rituals, values and traditions of the new culture (Oppedal, 2006). It has been found that as immigrant children develop they are increasingly able to perform effectively and comfortably in both their heritage culture and the mainstream culture, and usually develop friendships with peers from both groups (Oppedal, 2006; Phinney et al., 2006). Thus, the findings here support the idea that younger Asian Australian children, who are more highly influenced by the Asian cultural values of the family, will make greater use of expressive suppression when regulating their emotions. As they develop and become more aware of, and influenced by, Australian values which promote the expression of emotion, they become less likely to suppress their emotional expressions.

The finding that use of suppression is associated with a greater decrease in the Asian Australian group than the Australian group also supports the results of English

and John (2013) and those reported by John and Eng (2014) which suggest that suppression use decreases amongst Asian immigrants with greater acculturation to Western culture. It is noted that the interaction between cultural background and age in regards to suppression scores was quite weak, which may indicate that this effect may be quite slow and gradual. Further research is required to determine if this effect takes place in a linear fashion dependent on time alone, or is more pronounced in different developmental stages, such as adolescence and young adulthood.

The suppression scores of participants from both cultural groups were quite similar as they approached 18 years of age. This is surprising, given previous research has reported differences in the use of suppression in adult samples (Butler et al., 2007; English & John, 2013; Gross & John, 2003; Soto et al., 2011). This study did not have the opportunity to continue following participants as they transitioned from adolescence to young adulthood. Further research that monitors this transition may provide more information regarding any differences between the cultural groups in the maturational changes in the use of suppression.

Surprisingly, the use of suppression in the Australian adolescents did not decrease with age, which is inconsistent with previous findings of Gullone et al. (2010). This is particularly interesting given the sample used for the current research was drawn from an overlapping sample used for the Gullone study. The conflicting results may be due to cultural influences in the previous study which were not controlled for, or due to another, unmeasured, variable.

A limitation of the current study is the reliance exclusively on self-report measures. This is particularly problematic for cross-cultural studies, given evidence from previous research of cultural differences in response bias (Johnson, Kulesa,

Cho, & Shavitt, 2005; Johnson, Shavitt, & Holbrook, 2011). Of particular relevance to this study is the potential for greater acquiescence bias in the Asian Australian group. Findings from a cross-national study suggest that those from collectivist cultures, which place greater value on group harmony, are more likely to use an acquiescent response style on self-report measures (Johnson et al., 2005), however it is unclear if this is a problem in bicultural samples. Further research which controls for this possible response bias, or which uses multiple methods of measurement, is required to demonstrate the replicability of the findings of the current study.

In conclusion, this study addressed a gap in the current literature using Gross' (1998a, 2001; Gross & John, 2003) process model of ER, which has thus far neglected the preadolescent and adolescent age group. Cross-cultural differences in the use of expressive suppression and cognitive reappraisal, and differences in maturational change in the use of these ER strategies, were explored in this age group. Findings were consistent with previous research using adult samples, in that Asian Australian children and adolescents were found to use expressive suppression more frequently than Australian children. Findings also suggested that there is a more marked decrease in the use of suppression with age in the Asian Australian adolescents in comparison to Australian adolescents. No difference was observed between the groups in the use of cognitive reappraisal, nor in the maturational change in the use of this strategy. The findings emphasize the influence of culture in the regulation of emotions, and highlight the need to investigate cross-cultural differences before generalizing findings in this area to people from divergent cultural groups.

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CHAPTER 4: EMPIRICAL MANUSCRIPT, STUDY TWO

An examination of the relationship between expressive suppression and depression across cultures in children and adolescents

Preamble

Given that the findings presented in Chapter Three supported the hypothesis that children from an Asian cultural background would report more frequent use of expressive suppression, the question arises as to whether the association between increased use of suppression and increased depressive symptomatology found in previous studies using Western samples would be weaker in this cultural group. The only studies that have examined this question to date have done so using adult, cross-national samples. As Study One found evidence of an acculturation effect as the Asian Australian children developed through adolescence, it cannot be assumed that the absence of a relationship observed in ethnic Asian samples would be replicated in a bicultural sample. Thus the first aim of this study was examine the relationship between expressive suppression and depressive symptomatology in a child and adolescent sample, and establish whether findings of cross-cultural differences in this relationship would be replicated using a bicultural sample.

As very few studies have investigated the relationship between expressive suppression and depressive symptoms over time, the study also examined the directions of this relationship over time. Unfortunately however, we became aware of

the possibility of a measurement error for the CDI scores at T2 and T3 of the study. A meta-analysis of research using the CDI to measure depressive symptoms in children and adolescents, found that the use of the CDI for longitudinal studies was potentially problematic due to measurement error resulting in attenuated test scores (Twenge & Nolen-Hoeksema, 2002). The pattern of results found in the current study suggests it is likely that this attenuation in CDI scores at T2 and T3 was present. For this reason the study is exploratory. A decision was made, based on the possibility of this measurement error, to explore this question through a series of hierarchical regressions to establish a cross-lagged model. Although structural equation modelling would have typically been a more robust analysis, it was felt that using structural equation modelling would potentially be an over-analysis of potentially problematic data, and would not truly reflect the exploratory nature of the study. Although a cross-lagged regression model comes with its own limitations, it was deemed that this was the most appropriate analysis given the exploratory nature of the study.

Data for both Study One and Study Two of this thesis have been drawn from a larger study investigating many correlates of Emotion Regulation. In particular the data used was collected in the first three rounds (of an eight year study) from 2003 to 2006.

The paper is presented in the form of a manuscript which has been submitted for publication to the *Journal of Youth and Adolescence*. The format of the manuscript complies with journal requirements, including the spelling which is consistent with USA English, in contrast to the main body of the thesis. However, the font size has been returned to 12 point to be consistent with the rest of the thesis, and

the tables and figures have been integrated with the text for readability. Study approval letters, parent and adolescent explanatory statements and consent forms, and non-copyrighted questionnaires are contained in Appendices A through C. A correlation matrix for all variables included in Studies One and Two, and the full results of the hierarchical regression analyses performed for the cross-lagged models are contained in Appendix D.

Monash University

Declaration for Thesis Chapter Four

Declaration by candidate

In the case of Chapter Four, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution (%)
Literature review, conceptualisation of research questions, data analysis and interpretation (in collaboration with statistical advisor), preparation of written manuscript.	80%

The following co-authors contributed to the work:

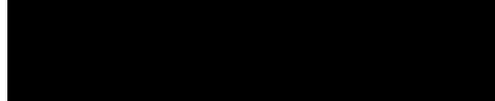
Name	Nature of contribution
A/Prof Eleonora Gullone	Conceptual input, project design, review of study drafts, general supervisory input
A/Prof Nikki Rickard	Review of study drafts, general supervisory input, statistical advice

The undersigned hereby certify that the above declaration correctly reflects the nature and extent of the candidate's and co-authors' contributions to this work.

**Candidate's
Signature**

	Date 13/03/2014
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**Main
Supervisor's
Signature**

	Date 7/3/14
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Abstract

This study aimed to examine how the relationship between expressive suppression and depression may differ across cultures and over time in a group of children and adolescents aged 8 to 16 years. The sample consisted of participants whose parents were born in Australia ($n = 410$; Age $M = 12.27$, $SD = 1.58$) or in Asia ($n = 391$; Age $M = 11.82$, $SD = 1.57$) and recruited through schools in Melbourne. As expected, a significant relationship was found between suppression and depressive symptoms. This relationship was weaker in the Asian Australian group compared to the Australian group. Also as predicted, results suggested that increased depressive symptoms precede an increased use of suppression, while suppression does not predict later depressive symptomatology. Interestingly, this pattern of findings was not replicated when the analysis was repeated separately for the Asian Australian group, providing more evidence of cultural differences in the suppression/depression relationship. Notwithstanding study limitations, the findings highlight the need to be cognizant of the influence of cultural background when considering outcomes of emotion regulation strategy use. Further research investigating the directions of these relationships is needed.

Keywords: Cross-cultural Differences, Emotion Regulation, Expressive Suppression, Depression, Adolescence,

In Western cultures the expression of emotion is highly valued and is seen as a healthy and adaptive part of self-expression (Kim & Sherman, 2007). In contrast, suppression of emotion is seen as unhealthy and likely to lead to negative outcomes (Kim & Sherman, 2007; Kitayama et al., 2000). With the rapidly expanding research focus on emotion regulation (ER) in psychology, much research has centered on the investigation of the outcomes of using two ER strategies: cognitive reappraisal and expressive suppression. These two strategies have been targeted for research because they occur at different stages in the emotion generation process. Cognitive reappraisal, which involves modifying a situation's cognitive meaning in an effort to change its emotional impact (Gross & Thompson, 2007), targets the emotion generative process before the emotional response has been triggered (Gross, 1998a, 2001). Expressive suppression, the regulation of one's expressive behavior (Gross & Thompson, 2007), targets the process once the emotional response has already been activated (Gross, 1998a, 2001).

Research investigating the comparative outcomes of using these two ER strategies corroborates Western beliefs that the suppression of emotion is maladaptive. Suppression has been consistently associated with negative outcomes such as increased experience of negative emotion and decreased experience of positive emotion (Dalglish et al., 2009; Gross & John, 2003; Nezlek & Kuppens, 2008), poorer social support and functioning (Butler et al., 2003; English & John, 2013; Gross & John, 2003; Srivastava et al., 2009), and decreased self-esteem (Nezlek & Kuppens, 2008). Increased use of suppression has also been related to increased incidence of psychopathology such as anxiety (Aldao et al., 2010; Moore et al., 2008) and depression (Beblo et al., 2012; Campbell-Sills et al., 2006b; Liverant et al., 2008; Moore et al., 2008). Conversely, regular use of reappraisal is

related to positive outcomes such as increased experience of positive emotion, decreased experience of negative emotion, improved social functioning and greater well-being (Gross & John, 2003; Nezlek & Kuppens, 2008).

It remains unclear as to why expressive suppression is related to poor outcomes. The direction of these relationships is also uncertain, with evidence emerging in the case of adolescent psychopathology, that depression may precede increased use of suppression, rather than vice versa (Larsen et al., 2012; Larsen et al., 2013). In addition, almost all research performed in this area has been conducted with adult samples from Western, and in particular European American, cultures which can be characterized as highly individualistic (Hofstede, 1983). It is therefore unclear if the findings that expressive suppression is related to poor social and psychological functioning will generalize to children and adolescents, and to cultures that are collectivist in nature.

Markus and Kitayama (1991) postulated that the way an individual experiences and expresses emotion will vary depending on self-construal; that is, the way they define and make meaning of the self in relation to others. They argued that those with an interdependent self-construal, which is fostered in collectivist cultures such as those in Asia, are socialized to define themselves in terms of their social roles, to value and promote cooperation and cohesion within groups over individual experience, and to control emotional expression to avoid offence and maintain group harmony in the pursuit of group goals (Markus & Kitayama, 1991; Safdar et al., 2009). In contrast, those with an independent self-construal, promoted in individualistic cultures such as the USA or Australia, are socialized to value the individual as the most important social unit in society. As such, uniqueness,

independence and autonomy are valued and expression of emotion is encouraged to maintain inner harmony and self-consistency, assert individuality and assist in communication of the inner state in pursuit of individual achievement-oriented goals (Cross et al., 2011; Kim & Sherman, 2007; Markus & Kitayama, 1991; Safdar et al., 2009).

An increasing number of research studies have demonstrated this difference in emotional responding (Denham et al., 2004; Kim & Sherman, 2007; Matsumoto, 1993; van Hemert et al., 2007), and results of a growing number of studies have established that this may translate to greater use of expressive suppression to regulate emotions in collectivist cultures. For instance, Asian Americans have been found to use suppression more often than European Americans (Butler et al., 2007; English & John, 2013; Gross & John, 2003). On a cross-national level, Matsumoto, Yoo, Nakagawa, et al. (2008) also found that countries with interdependent cultures that emphasized social order, such as those in Asia, were more likely to report more frequent use of suppression.

There is also emerging evidence that the link between the use of suppression and poor social or psychological functioning may be attenuated for those from Asian cultures. Butler et al. (2007) found that the association between habitual use of suppression and negative emotion observed for the European-American participants in their study was not present for the Asian-American participants. Further, the impaired social functioning observed when participants who endorsed European/Western values were instructed to suppress their emotions in a social task was significantly reduced for participants who endorsed Asian values. Similarly, Soto et al. (2011) found that Hong Kong Chinese college students were more likely

to use suppression than European American college students. Moreover, in their study which examined cultural effects on the relationship between suppression and psychological functioning, they found that while suppression was related to increased depressed mood and lower life satisfaction for the European American participants, these relationships were not present for the Hong Kong Chinese students.

To explain the reasons for this difference in outcomes of the use of suppression, a number of researchers have recently focused on the concept of congruence. Congruence can be considered at in two ways here: ensuring that one's inner experience and outer-behavior are in accordance with each other (English & John, 2013; Rogers, 1951; Su et al., 2013), or acting in accordance with the dominant way of being in one's cultural group (Kitayama et al., 2000; Kitayama et al., 2006). In an attempt to identify the mechanisms underlying the apparently negative relationship between habitual use of expressive suppression and social functioning, English and John (2013) postulated that feelings of inauthenticity may ensue from the habitual use of suppression resulting from the discrepancy between internal experience and external behavior. They argued that this feeling of inauthenticity may then leave that individual feeling they are not truly known or understood in their relationships and therefore experience reduced relationship satisfaction. Their findings supported this hypothesis, in that suppression was associated with inauthenticity and reduced relationship satisfaction. Interestingly this finding remained regardless of whether participants were European American, Asian American or Chinese, despite previous findings that suggest Asian people may place less importance on self-consistency than those with Western values (Suh, 2002). They also found that ethnicity did not mediate the relationship between suppression and reduced relationship satisfaction.

Kitayama and colleagues (2000; 2006) hypothesized that behaving in a way which is congruent with the dominant mode of being within one's cultural group would be conducive to developing better relationships and fostering a sense of well-being and increased positive emotions. In support, they found that increased general positive emotions were experienced by those who reported a higher frequency of culturally consistent emotion states - that is, interpersonally disengaged positive emotions in the American participants and interpersonally engaged positive emotion in the Japanese participants. Building on this, Su et al. (2013) found that suppression of positive socially disengaging emotions (such as pride) was associated with greater depressive symptomatology for European Americans; however no such relationship was found for their sample of Chinese Singaporean students. No cultural differences were found in the suppression depression link when positively engaging emotions were involved.

In their work examining major depressive disorder, Chentsova-Dutton and colleagues (2007; 2010) have proposed the cultural norm hypothesis to explain cultural differences in emotional responding in depressed patients. They proposed that individuals who are depressed display patterns of emotional responding that differ from their culturally ideal ways of experiencing and expressing emotions. According to this hypothesis, depression should be associated with reduced emotional reactivity in cultures which promote the open expression of emotions (individualist/Western cultures), while being associated with increased emotional reactivity in cultures which endorse emotional moderation and control (collectivist/Asian cultures). Their preliminary research findings supported this hypothesis, with reduced reactivity found in depressed European American participants and increased emotional reactivity in depressed Asian American

participants in comparison to non-depressed controls from the same cultural background. The causal nature of these findings have not yet been determined, so at this stage two explanations are possible: depression may reduce an individual's attention to, or concern for, responding to emotional stimuli in accordance with cultural norms (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010); or it could be that deviations from cultural norms in regards to emotional expression and experience may contribute to the development or maintenance of depressive illness through its effects on the ability of an individual to garner social support and to feel they meet expectations of self-consistency (in independent cultures) or social roles (in interdependent cultures; Kitayama et al., 2000; Su et al., 2013).

The Current Study

The current research aimed to examine the habitual use of emotion regulation strategies in children and adolescents from two cultural groups within Australia for which cultural norms regarding the expression or suppression of emotion represent potentially contrasting perspectives. The two groups investigated were children and adolescents who have parents born in Australia and a second group whose parents migrated to Australia from Asian countries of origin. The study aimed to determine if these groups differ with regard to a predicted relationship between depressive symptomatology and the habitual use of suppression. The study also aimed to conduct an exploratory investigation regarding the direction of the relationship between suppression and depression using a prospective longitudinal design. It was hypothesized that a positive relationship between increased use of suppression and depressive symptomatology would be found, however, this relationship was expected

to be significantly weaker in the children and adolescents with Asian born parents than those with Australian born parents. A negative association between reappraisal and depressive symptomatology, independent of culture, was also expected. The directional nature of the suppression/depression relationship has been largely unexplored, however the limited research conducted suggests that depressive symptoms will precede future increased use of suppression.

Method

Participants

The sample for the current study ($n = 801$) was drawn from a larger study of children and adolescents recruited from 13 primary schools and 7 secondary schools and 2 “P-12” schools (which enroll both primary and secondary aged children) in metropolitan Melbourne, Australia ($N = 1,392$). As part of the larger study examining various aspects of emotion regulation and its correlates, participants were assessed at six time points. Data for this study were drawn from the first three time points of the overall study, as attrition from time point four meant data from a large number of Asian Australian participants were missing at this time point. The three time points, referred to as T1, T2, and T3, occurred approximately one year apart. Response rates, determined by the number of consent forms returned on which parents consented to their child’s participation compared to those on which parents refused their child’s participation, were approximately 80% at T1, 84% ($n = 1,174$) at T2, and 77% ($n = 1,073$) at T3.

For this study only those students who indicated that both parents were born in Australia (Australian group) or that both parents were born in the major regions of

North-East Asia (T1 $n = 23$), South-East Asia (T1 $n = 235$) or Southern or Central Asia (T1 $n = 104$), or a combination of two of these regions (T1 $n = 29$; Asian Australian group) as classified by the Standard Australian Classification of Countries (SACC; Australian Bureau of Statistics, 2008b), were included. Of the Asian Australian group, 220 (56.4%) indicated they had always lived in Australia, 38 (9.7%) indicated they had lived in Australia for 11-15 years, 77 (19.7%) had lived in Australia for 6-10 years, and 55 (14.1%) had lived in Australia for 5 years or less. One participant did not answer the question. As a means of measuring acculturation participants were asked to indicate how much they had adopted the Australian way of doing things (Herz & Gullone, 1999). Of the Asian Australian participants, 10 (2.6%) responded 'not at all', 143 (36.6%) indicated 'a little', 143 (36.6%) said 'much', and 95 (24.3%) said 'very much'.

The characteristics of the final sample and results of between group comparisons are presented in Table 1. Asian Australian participants were significantly younger than the Australian participants. Participants were asked to supply their parents' occupations, however a large number did not complete these items. Therefore, as a measure of socio-economic background, residential postcodes were rated according to the Socio-Economic Index For Areas (SEIFA; Australian Bureau of Statistics, 2001) index for Advantage/Disadvantage. Higher ratings on this index indicate higher levels of advantage. Where a participant had not supplied their residential address or postcode at T1, it was ascertained from Time 4 (T4; of the larger study) when demographic surveys were re-administered. For a small number of participants who did not supply this information at T1 or T4 ($n = 37$) the postcode of their school address was substituted for residential address, as most government school students in Victoria are required to live in the neighborhood area of their

school. It can be seen in Table 1 that the Asian Australian group lived in significantly more disadvantaged residential areas than Australian participants suggesting lower socio-economic status (SES).

Table 1.
Characteristics of the Sample

Variable	Australian	Asian Australian	Between group comparisons
Time 1, <i>N</i>	410	391	
Male, <i>n</i> (%) ^a	187 (45.6)	166 (42.5)	
Female, <i>n</i> (%)	223 (54.4)	225 (57.5)	
Age, <i>M</i> (<i>SD</i>)	12.27 (1.58)	11.82 (1.57)	$t(799)=4.08^{****}$
Age Range	9.05-15.49	8.74-15.50	
Time 2, <i>N</i>	336	341	
Male, <i>n</i> (%)	158 (47.0)	143 (41.9)	
Female, <i>n</i> (%)	178 (53.0)	198 (58.1)	
Age, <i>M</i> (<i>SD</i>)	13.28 (1.61)	12.82 (1.52)	$t(675)=3.85^{****}$
Age Range	10.07-16.51	9.82-16.34	
Time 3, <i>N</i>	320	309	
Male, <i>n</i> (%)	144 (45.0)	129 (41.7)	
Female, <i>n</i> (%)	176 (55.0)	180 (58.3)	
Age, <i>M</i> (<i>SD</i>)	14.37 (1.56)	13.95 (1.57)	$t(627)=3.41^{**}$
Age Range	11.18-17.69	10.86-17.38	
Demographics (Time 1)			
SEIFA rating, <i>M</i> (<i>SD</i>)	994.36 (81.27)	950.26 (60.15)	$t(747.56)=8.72^{****}$
English language, <i>n</i> (%)	395 (97.1)	116 (30.1) ^b	

Note. ^aValid percent used throughout table. ^b2001 version of SEIFA was used as it was current at time of data collection. ^cFive participants did not indicate language spoken at home.

** $p < .01$, *** $p < .001$.

Materials

Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA).

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) comprises 10 items assessing the ER strategies of cognitive reappraisal (6 items) and expressive suppression (4 items). The ERQ has been reported to have adequate internal consistency ($\alpha = .79$ for reappraisal and $.73$ for suppression) and 3-month test–retest reliability ($r = .69$ for both scales) as well as sound convergent and discriminant validity with both younger and older adults (Gross & John, 2003; John & Gross, 2004).

In this study, a revised version of the ERQ was used to enhance completion by children and adolescents (ERQ-CA; Gullone & Taffe, 2012). The word ‘emotion’ was replaced with ‘feelings’ and item content was simplified (e.g., suppression: “I control my emotions by not expressing them” became “I control my feelings by not showing them”; reappraisal: “When I am faced with a stressful situation, I make myself think about it in a way that helps me stay calm” became “When I am worried about something, I make myself think about it in a way that helps me feel better”). In addition, the response scale was reduced from seven to five choices (1 = strongly disagree, 5 = strongly agree) to further simplify responding. Scores range from 4 to 20 on the suppression scale and from 6 to 30 on the reappraisal scale with high scores indicating more frequent use of the relevant ER strategy.

Psychometric analysis of the ERQ-CA in a sample of 1,745 children aged 9 to 16 years reproduced the two factors proposed by Gross and John (2003) and demonstrated adequate internal consistency ($\alpha = .81$ for reappraisal and $.69$ for suppression) and 12 month test–retest reliability (Gullone & Taffe, 2012). It also

correlated in the expected directions with measures of temperament, depression, shame, guilt, empathy, and parental bonding (Gullone & Taffe, 2012; Jaffe et al., 2010). Internal consistency of the reappraisal subscale was good for the current sample for both groups (ranging from $\alpha = .81$ to $.84$ [Australian group] and $\alpha = .75$ to $.82$ [Asian Australian group]). The expressive suppression subscale demonstrated adequate internal consistency for the Australian group (ranging from $\alpha = .68$ to $.76$), but was less robust for the Asian Australian group at T1 ($\alpha = .64$), and adequate at T2 and T3 ($\alpha = .72$ and $.68$, respectively).

Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a frequently used 27 item self-report measure of depressive symptomatology suitable for children aged 7 to 17 years. Each item on the inventory consists of three statements reflecting differences in symptom severity. For each item, respondents are required to indicate which statement best describes them over the past two weeks. For example, items include the following statements: "I am sad once in a while; I am sad many times; I am sad all the time" or "I can never be as good as other kids; I can be as good as other kids if I want to; I am just as good as other kids". Items are scored from 0 to 2, and total scores range from 0 to 54. High scores on the CDI indicate higher levels of depressive symptomatology.

One question regarding suicidal ideation was removed to satisfy requirements of the relevant ethics committee and school agencies. Thus, scores were adjusted to conform to the 27-item total score using the following formula: $26\text{-item total} + [26\text{-item total}/26]$ (Hughes, Gullone, Dudley, & Tonge, 2010). The CDI has well established psychometric properties including sound reliability and internal

consistency (Kovacs, 1992). Internal consistency for this sample was very good for both groups (Australian group $\alpha=.90$; Asian Australian group $\alpha=.87$).

Demographics. Demographic information collected included questions regarding parent's country of birth, parent's occupation, languages spoken, and number of years the child has lived in Australia. The child's report of the level of family acculturation to Australian culture was also measured on a four-point scale from 1 'not at all' to 4 'very much' (Herz & Gullone, 1999).

Procedure

The study was approved by the University Ethics Committee, the state Department of Education and Training, and the Catholic Education Office. Only those schools whose principal consented to involvement were included in the data collection process. Explanatory statements and consent forms were distributed by the researchers to children at school to be passed on to their parents. Completed parental consent forms were returned to the school by the children. All children with written parental consent, and who themselves gave written consent, completed written questionnaires in small groups in a quiet room at school under the supervision of the researchers and a teacher from the school. Participation was voluntary and children were told they were free to withdraw from the study at any time. The measures were presented in a counterbalanced order at all time-points.

Results

On examination of all distributions, it could be seen that CDI scores were significantly positively skewed and contained a small number (CDI T1= 9, CDI T2= 4, CDI 3= 7) of univariate outliers. A number of transformations were performed on CDI scores, with the square root transformation providing the distribution closest to normal. Results of all analyses using transformed and non-transformed data were compared and found to be comparable; therefore, results of analyses using non-transformed data are reported for ease of interpretation. No multivariate outliers were identified and all other assumptions of tests used were met.

Table 2.
Means and Standard Deviations for Suppression, Reappraisal and CDI by Cultural Background for Each Time Point.

Variable	Australian <i>M (SD)</i>	Asian Australian <i>M (SD)</i>
Time 1	<i>n</i> = 410	<i>n</i> = 391
ERQ Reappraisal	20.68 (4.27)	21.24 (4.03)
ERQ Suppression	10.38 (3.12)	12.05 (3.05)
CDI	11.24 (8.91)	10.69 (7.59)
Time 2	<i>n</i> = 336	<i>n</i> = 341
ERQ Reappraisal	20.66 (3.66)	21.62 (3.44)
ERQ Suppression	10.25 (2.98)	11.53 (3.01)
CDI	10.63 (8.19)	10.63 (7.57)
Time 3	<i>n</i> = 320	<i>n</i> = 309
ERQ Reappraisal	20.20 (3.89)	21.41 (3.53)
ERQ Suppression	10.12 (3.05)	11.47 (2.81)
CDI	10.78 (8.63)	9.53 (7.18)

The means and standard deviations for each cultural group for reappraisal, suppression, and CDI scores at all three time points are presented in Table 2. At all

three time points both suppression and reappraisal appear to be used more by Asian Australian students than the Australian students. However CDI scores were lower in this group for T1 and T3, but were the same for both groups at T2.

Random effects regression was used to model depressive symptomatology as measured by CDI score as a function of age, which was decomposed into between person (average across time) and within person (deviation from average age) components, cultural group (Asian Australian or Australian), ERQ suppression and reappraisal scores and their interactions with cultural group, acculturation score, gender, and SEIFA score, a measure of socioeconomic status. The overall model was found to significantly predict CDI scores ($\chi^2(10) = 391.98, p < .001, R^2_{overall} = .22$). The estimated coefficients, standard error and 95% confidence intervals for all independent variables and the interaction terms are presented in Table 3.

Table 3.
Random Effects Regression of CDI Score on Age, Cultural Group, Reappraisal and Suppression Scores and their Interactions with Cultural Group, Acculturation Score, Gender and SES Measure.

Variable	Coefficient	SE	95% Confidence interval	
			Lower Limit	Upper Limit
Age				
Average across time points	0.38**	0.14	0.11	0.65
Deviations from average	-0.19	0.13	-0.45	0.06
Asian-Australian	-1.82	2.03	-5.80	2.15
Suppression	0.84***	0.07	0.70	0.98
Suppression*Asian-Australian	-0.25*	0.10	-0.45	-0.05
Reappraisal	-0.51***	0.05	-0.62	-0.41
Reappraisal*Asian-Australian	0.13	0.08	-0.03	0.28
Acculturation	-0.53	0.33	-1.17	0.12
Female	1.55***	0.44	0.69	2.41
SEIFA score	-0.01*	0.00	-0.01	0.00
Intercept	15.31***	3.88	7.71	22.91

Notes. Based on 2078 observations of 794 participants across 3 time points

* $p < .05$, ** $p < .01$, *** $p < .001$

After all other variables in the model are accounted for, CDI was higher for older participants, but did not display evidence of change over time during the study (which, at about 2 years, is relatively short compared to the age range of participants (8 to 17 years)). There was no significant difference on average between the two cultural groups on CDI. CDI was associated positively with suppression score, and this association differed between the two cultural groups as represented in Figure 1. An estimated increase of .84 CDI points for each extra suppression score point is expected for the Australian group, compared to .38 for the Asian Australian group ($p < .05$). CDI scores were negatively associated with reappraisal scores, but this association did not differ between the two cultural groups, with an estimated decrease in CDI of .51 for each extra reappraisal score point for the Australian group in comparison to .38 for the Asian Australian group. Females reported higher CDI than males by an estimated average of 1.55 points ($p < .001$). There was no evidence that CDI was associated with acculturation score, but there was a slight negative association of CDI with the SEIFA measure of economic status ($p < .05$).

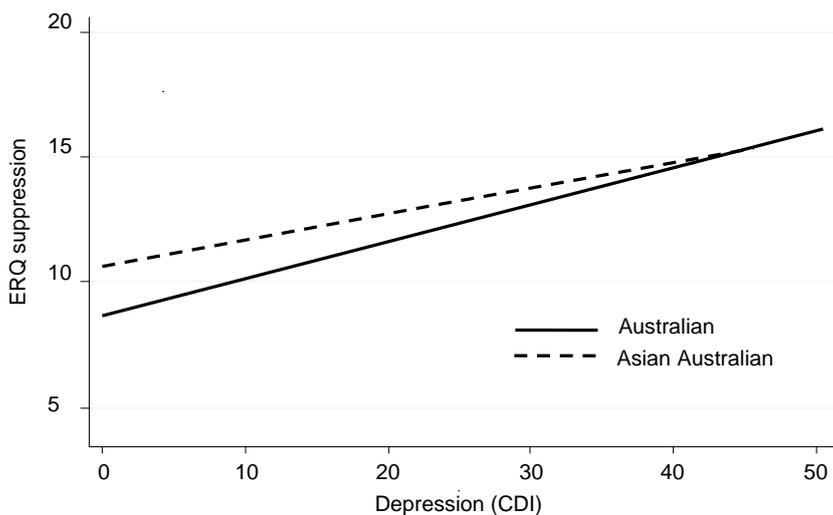


Figure 1.
Interaction between Culture and Suppression for the Relationship between Suppression and CDI Scores by Cultural Group.

In order to examine the relationships between depressive symptoms and suppression over time, a series of hierarchical multiple regressions were performed to construct a cross-lagged model (Berrington, Smith, & Sturgis, 2006; Granger, 1969). The series of regressions are outlined in Table 4. Regressions 1 and 2 were designed to test whether ERQ suppression scores, which were entered in step 2 of each regression, are associated with change in CDI score one year later, when the CDI score from the previous year is controlled. In other words they test whether ERQ suppression scores are a useful predictor of the change in CDI scores one year later. Similarly, regressions 3 and 4 are designed to test whether CDI scores, which were also entered in step 2 of each regression, are associated with the change in ERQ suppression scores one year later. All regressions controlled for gender, cultural background, age, and SES scores by including these as independent variables which were entered in step one of the multiple regression along with the previous year's scores on the dependent variable. All missing data were deleted listwise.

Table 4.
The Dependent Variable and Independent Variables Included in a Series of Four Regressions Included in the Cross-Lagged Model Investigating the Relationship between Suppression and CDI Over Time

	DV	IVs ^a
Regression 1	CDI (T2)	CDI (T1) ^b ERQ Suppression (T1)
Regression 2	CDI (T3)	CDI (T2) ^b ERQ Suppression (T2)
Regression 3	ERQ Suppression (T2)	CDI (T1) ERQ Suppression (T1) ^b
Regression 4	ERQ Suppression (T3)	CDI (T2) ERQ Suppression (T2) ^b

Note. ^aIn order to control for extraneous variables all regressions included gender, cultural background, age (at time of DV), and SES ratings as IVs entered in step 1 of the hierarchical regression. ^bScores entered in step 1 of hierarchical regression.

As the results of the randomized regression have been presented earlier, for the sake of brevity only the results of step 2 of the multiple regression will be presented here; that is, the usefulness of ERQ suppression scores as a predictor of change in CDI scores and vice versa. The unstandardized (B) and standardized (β) regression coefficients, and squared semi-partial correlations (sr^2) for the independent variables of interest in each regression are presented in Table 5. CDI score at T1 and T2 is associated positively with ERQ suppression scores one year later (T2 and T3 respectively), even when the CDI scores for the previous year are held constant. However suppression scores at T1 and T2 are not significantly associated with CDI scores at T2 and T3. Thus, it seems from these results that higher CDI scores precede increased use of suppression, but the opposite is not the case.

Table 5.
Unstandardized (B) and Standardized (β) Regression Coefficients, and Squared Semi-Partial Correlations (sr^2) for Predictors of Interest in Hierarchical Regressions Predicting CDI Scores and ERQ Suppression Scores.

Independent Variable	B [95% CI]	β	sr^2
Regression 1: DV= CDI (T2), $N=668$			
ERQ Suppression (T1)	.14 [-.03, .31]	.06	.003
Regression 2: DV= CDI (T3), $N=543$			
ERQ Suppression (T2)	.18 [-.01, .38]	.07	.004
Regression 3: DV= ERQ Suppression (T2), $N=669$			
CDI (T1)	.05 [.03, .08]	.14	.017***
Regression 4: DV= ERQ Suppression (T3), $N=546$			
CDI (T2)	.06 [.03, .09]	.15	.018***

Note. *** $p < .001$

Given the previous findings of differences in the relationship between suppression and depression between the Asian Australian and Australian groups in our sample, the series of hierarchical multiple regressions were repeated separately for the two cultural groups previously explored. As the results of regressions using dependent variables from T3 did not differ significantly from those performed with dependent variables from T2, they were not repeated again here. Therefore regressions 5 and 7 replicated regression 1 in each group and regressions 6 and 8 replicated regression 3 in each group. The only change made to the regression model was the removal of cultural background as an independent variable. Acculturation score was also included as an independent variable in the model for the Asian Australian group. The results of interest from these regressions are presented in Table 6.

The results presented in Table 6 display a different pattern of results for each cultural group. While the results of regressions 5 and 6 in the Australian sample repeat the findings of the total sample that CDI scores are positively associated with ERQ suppression scores on year later, but that increased suppression scores were not associated with CDI scores one year later. In contrast, this pattern was not been replicated in the Asian Australian sample. Increased CDI scores do not precede increased suppression scores, and increased suppression scores do not precede increased CDI scores in this group.

Table 6.
Unstandardized (B) and Standardized (β) Regression Coefficients, and Squared Semi-Partial Correlations (sr^2) for Predictors of Interest in Hierarchical Regressions Predicting CDI Scores and ERQ Suppression Scores in Australian and Asian Australian Children.

Independent Variable	B [95% CI]	β	sr^2
<i>Australian sample</i>			
Regression 5: DV= CDI (T2), N=332			
ERQ Suppression (T1)	.11 [-.13, .34]	.04	.001
Regression 6: DV= ERQ Suppression (T2), N=333			
CDI (T1)	.07 [.03, .10]	.20	.034***
<i>Asian Australian sample</i>			
Regression 7: DV= CDI (T2), N=336			
ERQ Suppression (T1)	.18 [-.01, .43]	.07	.004
Regression 8: DV= ERQ Suppression (T2), N=336			
CDI (T1)	.03 [-.01, .07]	.08	.006

Note. *** $p < .001$

Discussion

This study aimed to examine whether the relationship between depressive symptomatology and the habitual use of suppression observed in Western adult populations was also present in a sample of Australian children and adolescents, and whether this relationship differed according to cultural background. As expected, a significant relationship was found between suppression and depressive symptoms with higher levels of suppression use correlating with increased depressive symptomatology. Higher levels of reappraisal use were also found to be inversely correlated with depressive symptoms. The hypothesis that the relationship between

suppression and depression would be weaker for those from an Asian Australian background was also supported with a small but significant interaction between cultural background and suppression in regards to depression scores. While the relationship between suppression and depression was found to be significant for both cultural groups, it was significantly weaker in the Asian Australian group in comparison to the Australian group.

These results provide support for, and extend to a child and adolescent sample, the findings of differences in this relationship depending upon cultural background in previous studies. For instance, Su et al. (2013) and Soto et al. (2011) have both previously found that while the use of suppression was associated with depressive symptomatology in Western samples, this association was not found in adults from Asian cultures. The fact that the relationship between depressive symptoms and suppression was attenuated but still present in the Asian Australian group may be accounted for by our use of a bicultural sample. The majority of those in the Asian Australian group were born in Australia, and therefore the cultural differences found in prior studies may be reduced in a sample where significant acculturation can be expected. This acculturation effect may also explain why the interaction was weaker than expected in comparison to these previous findings. Support for an acculturation effect was found in the study of English and John (2013), who measured the use of expressive suppression in samples of European American, Asian American and Chinese participants. They found that while the Asian American participants obtained higher suppression scores than the European Americans, the Chinese sample scored higher on suppression than both American groups.

Additional results support previous findings that females and those with lower SES report more depressive symptoms (D. M. Costello, Swendsen, Rose, & Dierker, 2008; Jackson & Goodman, 2011; Miller & Taylor, 2012; Twenge & Nolen-Hoeksema, 2002; Wickrama & Vazsonyi, 2011). Interestingly, in the present research it was also found that older children reported more depressive symptoms, but no such relationship with deviation age was found, suggesting no increase in depressive symptoms as children aged. These contradictory findings may reflect a cohort effect on CDI scores rather than a developmental effect. Alternatively, the attenuation of depressive symptoms with developmental age may be a result of measurement effects due to the longitudinal nature of the study. Twenge and Nolen-Hoeksema (2002) conducted a meta-analysis of studies which compared a range of differences on the CDI and found that while cross-sectional studies consistently report increased depressive symptomatology in older participants, longitudinal studies report either no change, or a decrease in CDI scores over time. From the pattern of results, they concluded that this difference is most likely a result of measurement effects due to habituation to the test items. In light of these findings, and given that increased depressive symptomatology with age through adolescence is a robust finding, it is likely that the discrepancy in the current findings is similarly due to measurement effects.

Results provide strong support for previous findings indicating that increased use of suppression is associated with higher rates of depressive symptomatology and that increased use of reappraisal is associated with fewer depressive symptoms. Both of these findings are reasonably well established with a number of previous studies reporting similar results (Aldao et al., 2010; Beblo et al., 2012; Dennis, 2007; Gross & John, 2003; Joormann & Gotlib, 2010; Kahn & Garrison, 2009; Soto et al., 2011;

Su et al., 2013). However, to date, little research has been conducted to explore the directions of these relationships over time. For instance, it may be that increased use of suppression results in the negative outcomes found in previous research such as decreased social functioning which may then lead to increased symptoms of depression. Conversely, it is also plausible that those with increased depressive symptoms find it more difficult to regulate their emotions effectively and therefore make greater use of suppression and less use of reappraisal.

The second aim of this study was to explore the relationship between suppression and depression over time to garner some extra information regarding the nature of the relationship. As predicted, results support previous findings that depressive symptoms precede increased use of suppression, but that suppression does not predict later depressive symptomatology (Larsen et al., 2012; Larsen et al., 2013). This is certainly an interesting finding, given much of the ER literature assumes that increased use of suppression leads to increased negative consequences such as depression. Interestingly, this pattern of findings was not replicated when the analysis was repeated separately for the Asian Australian children and adolescents. This result provides more evidence of differences between cultural groups in the suppression/depression relationship. Thus, these findings provide support for the cultural norm hypothesis, which posits that people with depression experience difficulty regulating their emotions in ways which are congruent with the norms of one's culture (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010; Su et al., 2013). Despite this, higher depression scores were not found to predict less use of suppression in the Asian Australian group, which may have been expected according to this theory. Therefore further research is required to further explore how culture, the use of suppression, and depression interact.

It should be noted that caution is required in interpreting these results within a causal framework due to limitations of the study and the nature of the analysis, which is, ultimately, correlational. As was mentioned previously, these results demonstrated evidence of measurement effects related to the longitudinal use of the CDI, which may have underestimated depressive symptoms in the second and third rounds of the study. If this is the case, the attenuation of CDI scores would affect the ability to accurately assess whether increased suppression leads to increased CDI scores over time. The measurement error may have led to a false negative in regards to this relationship. In fact, measurement error due to habituation to test items as a result of the administration of the measures over multiple time points is a danger for all measures used in the study. The separation of each time point by a period of one year is expected to have minimized the likelihood of this occurring, however the possibility cannot be discounted.

Structural equation modelling was not used for this analysis as the aim of the study was to explore the relationship between suppression and depression over time, rather than to test a specific causal model. Given the possibility of measurement error, caution was observed in an attempt to avoid over-analysis of the data. However, cross-lagged regression models have also been criticized for a number of limitations. The most serious of these is that cross-lagged regressions are a function, not only of the causal effects of one variable on the other, but also of the stability of each variable over time, which is assumed in the model (Berrington et al., 2006; Finkel, 1995; Rogosa, 1980). Thus, these results need to be viewed with the limitation that the natural variability in suppression and depressive symptoms over time may not have adequately been taken into account. Notwithstanding this limitation, the present results provide valuable new information in the understanding

of the relationship between the specific ER strategies examined and depression as moderated by culture in children and adolescents. They also, however, highlight the need for further investigation in this area and for caution in making assumptions that some ER strategies may lead to negative outcomes, rather than considering the potential for maladaptive functioning to lead to increased use of less adaptive ER strategies.

Regarding the cross-lagged analysis performed on the two cultural groups separately, the findings lend support to the case that the relationship between suppression and depressive symptomatology differ for Asian Australian and Australian children and adolescents. There is no reason to suspect that the CDI scores at T1 or any of the suppression scores in the current study are artificially attenuated. Thus, the finding that increased CDI scores do not predict increased suppression scores in Asian Australian children and adolescents as they do for the Australian sample adds further support to the previous findings of differences in this relationship in this cultural group.

The results of this study highlight the need for future research to investigate how culture affects the relationships between ER strategy use and both positive and negative consequences. In addition, factors other than cultural group may also need to be investigated in this regard. The findings reported here revealed that relationships between ER strategy use and negative outcomes may also differ depending on gender. Higher use of suppression in males than females was observed in the current sample, however males also reported lower rates of depressive symptomatology, which contradicts the findings of a positive relationship between

these two variables. Clearly the use of ER strategies and their outcomes is an area of great complexity, and is worthy of further exploration.

These findings offer a valuable contribution to the ER literature by providing evidence of a positive relationship between expressive suppression and depressive symptoms, and a negative relationship between cognitive reappraisal and depressive symptoms in a child and adolescent sample. They also provide support for previous findings of cultural differences in the relationship between suppression and depression. Although results were weaker than expected, the cross-lagged regressions that investigated the relationship between suppression and depression over time also reinforced the evidence of difference between cultural groups in this relationship. The study also supports previous research indicating that it seems to be depressive symptoms that lead to future increase in the use of expressive suppression, rather than the assumed direction of the relationship; that is, that increased use of suppression leads to increased depressive symptomatology. Although the support this study can provide to this finding is limited, it does encourage research to explore this relationship further and to determine how these variables may influence each other over time.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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CHAPTER 5: GENERAL DISCUSSION

The aim of this thesis was to develop a greater understanding of cross-cultural differences in the use of expressive suppression and its links to maladaptive functioning. In a review of the literature the reasons why cultural differences might be expected in the use of expressive suppression were explored, and a number of studies which have found evidence for differences in the habitual use of expressive suppression between people from Western and Asian cultures were reviewed. The review established that the vast majority of research in this area has been conducted with adult samples. Thus, Study One aimed to compare the use of expressive suppression and cognitive reappraisal in a sample of children and adolescents from an Australian and Asian Australian background. Given the use of a bicultural sample and that cultural values and beliefs may be expected to change with adolescent development and acculturation in this group, a second aim of the study was to investigate whether developmental differences existed between the two groups in regards to their use of expressive suppression.

Arising from the findings of Study One and the issues identified in the literature review, Study Two examined whether there were any differences between the two cultural groups in the link between habitual use of expressive suppression and depressive symptomatology. As little is known regarding the direction of the relationship between suppression and depressive symptoms, a final aim was to conduct a preliminary investigation into the direction of this relationship over time.

This final chapter will summarise and briefly discuss the findings regarding each study in turn, followed by a more detailed discussion of the implications and limitations of the research including suggestions for future research.

5.1 Summary of main findings

Study One

Research Question 1: Is there a difference in the use of ER strategies in children and adolescents from different cultural groups?

Based on previous findings from adult studies (Butler et al., 2007; English & John, 2013; Gross & John, 2003; Soto et al., 2011), it was hypothesised that children and adolescents from an Asian Australian cultural background would report more frequent use of suppression to regulate their emotions than those in the Australian group, and this hypothesis was supported. Also as expected and in accordance with previous findings (English & John, 2013; Gross & John, 2003; Soto et al., 2011), no differences in the use of cognitive reappraisal were found between cultural groups.

There is a strong body of evidence for cultural differences in the use of expressive suppression in adult populations. For instance, Gross and John (2003) and English and John (2013) have found that Asian Americans reported greater use of expressive suppression than European Americans, and Butler et al. (2007) found that women holding Asian values reported more frequent use of expressive suppression than women with European values. Similar to the current study, these researchers investigated the use of suppression in a bicultural sample, however, other researchers

have found similar results using international samples, such as Hong Kong Chinese (Soto et al., 2011), and Chinese (English & John, 2013) participants in comparison to American participants. The current study demonstrates that these findings can be generalised to a child and adolescent population, and establishes that these differences are present at quite an early age.

There is now a well-developed argument that the differences found between these groups in the use of suppression are due to cultural differences in the endorsement of expressing emotion. At the time of their study, Gross and John (2003) speculated that the differences they found could be attributable to minority status rather than to cultural variation in the expression of emotion, as the Asian American group included in their study displayed similar rates of use of suppression as the African American and Latino American groups. However, studies are now emerging which have replicated these findings using international samples. For example Soto et al. (2011) found higher rates of suppression use in Hong Kong Chinese undergraduate students in comparison to European American students. Furthermore, English and John (2013) included comparisons with a sample of Chinese nationals, in addition to the European and Asian American groups. This study found that the Chinese group reported significantly greater use of suppression than both the European Americans and the Asian Americans, suggesting an acculturation effect in the Asian American group. It was the possibility of this acculturation effect that led to the next research question investigating how the use of suppression may change as children and adolescents develop.

Research Question 2: Does the developmental change in the use of ER strategies from childhood to adolescence differ between cultural groups?

Previous research investigating the use of expressive suppression across adolescent development has found that adolescents make less use of suppression to regulate their emotions as they age (Gullone et al., 2010; Larsen et al., 2012). The current study made use of a bicultural sample in the Asian Australian group. In consideration of the previous findings of English and John (2013) and those cited by John and Eng (2014) regarding the acculturation effect on suppression scores, it was expected that as children in the Asian Australian group age through adolescence they would display a greater reduction in the use of suppression than the Australian group. Results did reflect a significant interaction between culture and age in relation to suppression scores, with the direction of this interaction supporting the hypothesis. It appears that there is no change in the use of suppression with age in the Australian group; in contrast, the Asian Australian group displayed reduced use of suppression with age. An unexpected finding was that use of cognitive reappraisal declined with age, however no differences between the two cultural groups were found in regards to the use of cognitive reappraisal as children developed through adolescence.

Interestingly, the previous findings (Gullone et al., 2010; Larsen et al., 2012) of a reduction in the use of suppression with age were not replicated in the current study for the sample as a whole. This was particularly unexpected in regards to the Gullone study, as the sample overlapped significantly with the sample of the current study. It is noted however that the aim of the Gullone study was to investigate the use of ER strategies over time in a sample which was representative of the Australian population overall, rather than to investigate cultural differences. Therefore cultural

background was not controlled in that study, and the conflicting findings are most likely a result of this. Larsen et al. (2012) also found a significant interaction between gender and time in relation to suppression use, which suggested that the decrease in the use of suppression over time largely applied to their male participants. Thus, the maturational change in the use of suppression over time appears to be quite nuanced, and is in need of more detailed exploration in regards to gender and cultural differences, such as gender differences across cultures, or differences within the bicultural group depending on parents' country of origin or the different acculturation strategies employed, that might influence any changes.

Study Two

Research Question 3: Is there a relationship between the use of ER strategies and depressive symptomatology and does this differ across cultures?

Study One found that Asian Australian children and adolescents report significantly more frequent use of suppression than Australian children and adolescents. Considering the argument that this difference is due to increased acceptability of the suppression of emotions in Asian cultures, Study Two aimed to examine whether this may have an effect on the relationship between suppression and depressive symptoms which has been found in Western samples. As hypothesised, the results reflected a significant relationship between suppression and depressive symptoms with higher levels of suppression use correlating with increased depressive symptomatology. Use of cognitive reappraisal was negatively associated with depressive symptoms, with less frequent use related to an increase in depressive symptoms. Although there was no significant relationship between

culture and depressive symptoms, a significant interaction was found between cultural background and suppression in regards to depressive symptomatology. This interaction indicated that the relationship between suppression and depression was significantly weaker for those from the Asian Australian group in comparison to the Australian group.

Evidence is emerging that the relationship between the use of expressive suppression and depressive symptoms is moderated by cultural background. For instance, in studies of young adults, Su et al. (2013) and Soto et al. (2011) reported findings that the association between suppression and depressive symptoms found in Western samples was not present in Asian cultures. The current study provides support for these previous findings, and extends them to a child and adolescent bicultural sample.

Research Question 4: How does the relationship between suppression and depression change over time?

Although a number of researchers have found evidence of a relationship between suppression and depression (Aldao et al., 2010; Betts et al., 2009; Gross & John, 2003; Soto et al., 2011), to our knowledge only two previous studies have investigated the direction of this relationship with a longitudinal design (Larsen et al., 2012; Larsen et al., 2013). Therefore, the final aim of the thesis was to perform an exploratory analysis of the direction of the suppression/depression relationship over time. The findings of Larsen et al. (2012; 2013) suggest a unidirectional relationship, with increased depression leading to increased use of suppression, but not vice versa. Therefore, although the current study was largely exploratory in

nature, it was hypothesised this finding would be replicated. Results of the cross-lagged model for the sample as a whole did replicate previous findings that depressive symptomatology predicts an increase in the use of suppression with age, but that use of suppression does not precede increased depressive symptomatology. However, these findings do need to be considered in light of the possible measurement error in regards to the administration of the Children's Depression Inventory over multiple time points (Twenge & Nolen-Hoeksema, 2002).

In consideration of the previous findings that the relationship between suppression and depressive symptomatology differed between the two cultural groups studied, the decision was made to replicate the cross-lagged regressions separately for each group. Interestingly, while the results for the Australian group replicated the pattern found for the entire sample, the results for the Asian Australian group reflected no significant predictive relationship between suppression and depressive symptoms in either direction. This result provides further support to the previous finding that this relationship differs significantly between these cultural groups, and potentially lends support to the cultural norm hypothesis for depression which proposed that people with depression experience difficulty responding to emotions in an appropriate way for their cultural context (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010). The theoretical implications of all findings will be explored further in the next section.

5.2 Implications and future directions

5.2.1 The development of ER strategy use through adolescence

Findings of this study contribute significantly to understanding of developmental changes in the use of ER strategies through adolescence in Western populations. As previously mentioned, it was a surprising finding that the use of suppression did not decrease with age in the Australian group. Two studies have previously found that suppression use decreases with age through adolescence in Western samples (Gullone et al., 2010; Larsen et al., 2012). This finding was consistent with the developmental literature which postulates that children become increasingly adept at regulating their emotions with age (Gross & Muñoz, 1995; Thompson & Goodman, 2010). In particular it is thought that with cognitive development, antecedent regulation strategies would be more readily used as children and adolescents become more able to perceive and understand emotion eliciting events, and indeed emotions themselves, in different, more adaptive ways (Cole et al., 1994; Gullone et al., 2010). The findings of the current study are interesting then, as they suggest that in the Australian sample, the use of suppression is relatively stable through adolescence.

In addition to this, the current study also found that increasing age was related to decreasing use of reappraisal; a finding which is similar to that found by Gullone et al. (2010). It is difficult to explain this finding, as it contradicts the developmental theory outlined above regarding cognitive development during adolescence. One possible explanation for these findings is that this period is also marked by an increase in the experience of intense emotions, and reduced feelings of self-control

(Casey, Jones, & Hare, 2008; Vigil et al., 2011). Neuropsychological studies have found that adolescents, in comparison to children and adults, display a marked increase in activity in regions of the limbic system of the brain associated with the generation of emotions and emotional behaviour (Casey et al., 2008; Vigil et al., 2011). It has been suggested that this increase in activity marks a stage in the development of the brain where the activation of the limbic system exceeds that of the cortical system, which would otherwise act to inhibit inappropriate affective responses and instil cognitive control (Casey et al., 2008; Casey, Tottenham, & Fossella, 2002). It is only in late adolescence that the limbic and cortical systems are thought to become balanced in their levels of activation, allowing the prefrontal cortex to inhibit inappropriate responses and execute planned behaviour (Casey et al., 2008; Vigil et al., 2011).

If this were the case, it may explain the pattern of ER strategy use in the current study, in that adolescents, while developing in cognitive sophistication, are still limited in their ability to employ cognitive ER strategies when experiencing strong emotions. Adolescents faced with the inability to gain cognitive control in the generative stages of emotion development, may instead maintain their use of response-focussed ER strategies, such as expressive suppression, in a bid to regulate their emotions. It is possible that if the current study had continued through the transition from late adolescence to early adulthood, an increase in the use of cognitive reappraisal may have been observed as the brain becomes more able to gain cognitive control of emotional stimuli. Clearly this is an area that requires further research. It is recommended that future studies focus on the development of ER strategies during the transition from adolescence to adulthood, and that other factors that may influence the use of ER strategies, such as gender, be investigated.

5.2.2 Acculturation in the use of expressive suppression in adolescence

Findings presented in this thesis have demonstrated that Asian Australian children and adolescents make more use of expressive suppression to regulate their emotions than Australian children and adolescents. This is the first time a study has investigated cultural differences in the use of expressive suppression in an adolescent sample, and it demonstrates that differences found in adult studies are also present in children as young as eight years old. This was the case even when the majority of the children in the Asian Australian group were born in Australia, suggesting the parent's culture of origin is a significant influence on the emotional responding of these children.

In addition to this, the findings of Study One indicate that as Asian Australian children develop through adolescence they reduce their use of suppression with age, to the point where the reported rate of use of suppression in this group resembled that of the Australian group by late adolescence. This change contrasts with suppression use in the Australian group who reported stability in the use of expressive suppression over time. Again, this is the first study which has demonstrated this difference in the development of the use of expressive suppression between cultural groups in adolescence, and suggests that through this period Asian Australians are becoming more aware and reflective of the norms regarding emotional expression in the dominant Australian culture.

This study sheds light on the process of acculturation of ER and emotional responding. However, at this stage it is still difficult to decipher if the change reported here is a result of this group developing through adolescence, or is part of a linear process of acculturation taking place over time. English and John (2013) found

evidence suggestive of an acculturation effect present in young adult Asian Americans related to the use of expressive suppression. Their cross-sectional study compared the use of expressive suppression across Chinese, Asian American and European American college students. They found that Asian Americans reported significantly less use of suppression than the Chinese group, but significantly more use of suppression than the European American group. Similarly, John and Eng (2014) have cited findings of a cross-sectional study on acculturation effects on suppression, reporting less use of suppression in the Asian American participants the longer they had lived in the United States; this effect was mediated through greater independent (but not reduced interdependent) self-construal. However, English and John reported the Asian American group had lived in the United States for a mean of 15 years, while John and Eng did not report participant details. Neither study measured the use of suppression over time. Therefore it is unclear how or when this acculturation in the use of suppression took place. It is possible that the process of acculturation is concentrated in particular developmental stages, such as adolescence, or it could be a linear process dependent largely on time alone.

Contemporary theorists in the area of acculturation are increasingly arguing that the process of acculturation is generally non-linear, and is multidimensional (Berry, 2005, 2006; Sam, 2006). For instance, Berry (2005, 2006) argues that acculturation strategies change according to the degree to which an individual maintains his or her original cultural identity and the degree to which that individual participates in the cultural activities of the new community - both of which can change over time. In Western cultures, adolescence is a stage of development which is seen as significant for the expansion of the sphere of influence from being largely focussed on parents and family, to an increase in the influence of peers and external

institutions. There is evidence that similar processes are taking place in children of immigrant parents in this developmental stage (Oppedal, 2006), and that as these children develop they become increasingly competent at performing effectively in both cultural contexts (Oppedal, 2006; Phinney et al., 2006). Therefore it is reasonable to argue that adolescence may be a developmental period in which acculturation to the dominant culture may take place at a faster pace. However, the results of our study were weaker than expected, which suggests that the process of acculturation is still quite slow and gradual during this period, and may lend weight to a more linear process of acculturation. It is recommended that future research continue to investigate the process of acculturation in the use of expressive suppression by implementing longitudinal studies at various stages of development to provide further details of whether this process is largely linear in nature, or is more pronounced in particular developmental stages.

The concept and process of acculturation is a very complex one, and future research would benefit from a more detailed and comprehensive examination of how acculturation status affects within group differences in ER strategy use, as well as changes in habitual ER strategy use over time and with development. For instance, researchers could focus on whether changes in ER strategy use are dependent on the use of different acculturation strategies such as integration, assimilation, separation or marginalisation (Berry, 2005, 2006). Similarly, an exploration of the effect of variations in the subjective experience of ethnic identity and how differing contexts may affect this through the employment of more qualitative research methods would also be beneficial.

Further investigation of within group variability is not only relevant for bicultural groups, but is relevant to all cultural groups. For instance, children of the dominant culture who attend particularly multicultural schools may come into greater contact with cultures other their own. As a result they may experience increased identification with these other cultures through the development of friendship groups, the reproduction of group behaviours or the sharing of group attitudes (Vedder & Phinney, 2014). The employment of more complex multilevel modelling that investigates the effect of attachment and identification with different groups, such as different schools or community, sporting or religious groups, on ER strategy use would be useful in examining these issues in a more detailed and meaningful way.

5.2.3 The moderation of the relationship between expressive suppression and depression by culture

A number of researchers have found evidence of a relationship between the use of expressive suppression and depressive symptomatology (Aldao et al., 2010; Betts et al., 2009; Gross & John, 2003; Soto et al., 2011), and a picture is starting to emerge that suggests that culture moderates this relationship (Soto et al., 2011; Su et al., 2013). The findings of this thesis contribute to this body of knowledge by establishing that cultural differences in the strength of the suppression/depression relationship can be found in a child and adolescent population, and in a bicultural sample, neither of which has previously been studied in regards to this relationship.

Only two previous studies have investigated cultural differences in the suppression/depression relationship, and both have done so using cross-national adult samples (Soto et al., 2011; Su et al., 2013). Soto et al. (2011) compared European

American and Hong Kong Chinese students and found that while increased use of suppression was related to increased depressive symptoms and decreased satisfaction with life in the American group, no such relationships were found for the Chinese students. In a more nuanced study, Su et al. (2013) investigated whether the type of emotion being suppressed would impact on the link between suppression and depression. They found that the use of expressive suppression for positive socially disengaging emotions (such as pride) was associated with higher rates of depressive symptomatology for European Americans, but not for Chinese Singaporeans, and this difference was mediated by independent self-construal. They found no cultural differences in the suppression/depression relationship when positive socially engaging emotions (such as respect) were involved.

Unlike these previous studies, the current study did find that the relationship between suppression and depression was present in the Asian Australian group; it was just weaker than that found for the Australian group. In light of the evidence of acculturation of the Asian Australian group in regards to suppression use, the different findings in the current study may be reflective of the use of a bicultural sample, and the different cultural context in which the expressive suppression is taking place. The differing results may also be due to the current study's inclusion of participants from a wide range of different Asian cultural backgrounds in the 'Asian Australian' group, where the previous studies included a more culturally homogenous group. The finding of a weaker relationship does support these previous findings however, and places a question over the previous assumption that 'timing is everything' when it comes to ER (Gross, 2001). Clearly, cultural context is an important consideration in relation to emotional responding, and whether different emotion regulation strategies are adaptive or not, or are likely to be linked to

maladjustment. However, just as the previous studies demonstrated that the relationship between suppression and depression found in Western studies cannot be assumed to generalise to people from non-Western countries, the current study similarly demonstrates that findings of cross-cultural differences in international studies cannot be assumed to generalise to a bicultural population.

While cross-cultural differences in the relationship between expressive suppression and maladaptive functioning have been found by a number of studies (Butler et al., 2007; Soto et al., 2011; Su et al., 2013), the mechanism driving this difference is not yet clear. Some researchers have proposed that expressive suppression may lead to maladaptive functioning due to feelings of inauthenticity which result from incongruence between the internal and external state (English & John, 2013; Su et al., 2013). It is thought that continued feelings of incongruence experienced by those who use expressive suppression regularly can, over time, lead the individual to experience themselves as inauthentic, which then increases the risk of maladjustment (English & John, 2013).

Expression of emotion is seen as an integral way of asserting individuality in independent Western cultures, while those from interdependent cultures are more inclined to define themselves according to their relationships with others (Markus & Kitayama, 1991). Thus, it has been argued that this may be the reason behind the cultural differences in the association between suppression and depression, as those from interdependent cultures do not experience the suppression of emotional expression as inconsistent with their self-concept (Su et al., 2013). Su et al. (2013) argued that the findings of their study, described earlier, support this theory, as it is argued that positive socially engaging emotions are signifiers of independence. It

was the suppression of these emotions in particular which was related to increased depressive symptomatology in the European American participants in their study. However no relationship was found for the Chinese Singaporeans suppressing the same emotions. Interestingly, in their study investigating the relationship between use of suppression and relationship satisfaction, English and John (2013) found no cultural differences in the relationship between increased use of suppression and decreased relationship satisfaction. They also found that this relationship was mediated by feelings of inauthenticity. Thus, they found evidence that use of suppression may lead to feelings of inauthenticity, which is then associated with reduced social functioning, but this applied equally to all cultural groups studied. Clearly more cross-cultural research into the complex relationships between the use of expressive suppression, feelings of authenticity, and maladjustment is required. Of particular interest is whether more specificity is required in the types of emotion being suppressed and the effect this has on feelings of authenticity across cultures.

However, it cannot be assumed that expressive suppression leads to increased depressive symptomatology in people from Western cultural backgrounds. This could be the case, but it is just as likely that an increase in depressive symptoms leads to an increase in expressive suppression in this group, or that the relationship is bidirectional in nature. The cultural norm hypothesis of depression suggests that individuals who are depressed have difficulty regulating their emotions in a culturally appropriate way (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010). Chentsova-Dutton et al. (2007; 2010) have found support for this theory in that European Americans with depression were more likely to display attenuated emotional reactivity, while depressed Asian Americans exhibited similar or greater

emotional reactivity in comparison to non-depressed controls (Chentsova-Dutton et al., 2007; Chentsova-Dutton et al., 2010).

Initial findings regarding the direction of the relationship between suppression and depression have also lent support to this theory. Larsen et al. (2012; 2013) found evidence that the relationship is unidirectional, with an increase in depressive symptoms predicting an increase in the use of expressive suppression at a later time point, in an adolescent sample. However, they did not investigate cultural differences in this study. The current study also found evidence that increased depressive symptoms predict an increase in the use of suppression in the Australian group. However possible measurement error in depression scores at the second and third test time-points preclude confidence in any conclusions drawn regarding the absence of a predictive relationship in the opposite direction. Nonetheless, it was interesting that contrary to the findings in the Australian sample, depressive symptoms failed to predict increases in suppression use in the Asian Australian group. This lends further support to the cultural norm hypothesis, as it would lead us to expect either no predictive relationship, or that depression would predict a reduction in the use of expressive suppression in this group. That a reduction in suppression use was not observed may be attributable to the use of a bicultural sample. It is recommended that future research continue to investigate the possible directions of this relationship, using a range of cross-cultural samples, including cross-national samples. It is also recommended that this research include an examination of whether the type of emotion being suppressed impacts on the relationship between expressive suppression and depression over time and any cross-cultural differences in this relationship, and whether feelings of authenticity have any mediating effects on these relationships.

5.3 Limitations of the study

Several limitations of the current study may have influenced the findings, or our ability to interpret some of the findings effectively. The most serious limitation of the study is the possibility of measurement error in the depression scores at time two and time three. In their meta-analysis of research using the Children's Depression Inventory to measure depressive symptoms in children and adolescents, Twenge and Nolen-Hoeksema (2002) found that while cross-sectional studies consistently reported higher rates of depressive symptoms in older adolescents in comparison to younger children and adolescents, longitudinal studies rarely found a corresponding increase as adolescents aged. Due to the patterns found in their data, these researchers concluded that this disparity was most likely the result of a measurement error due to the habituation of respondents to the test items. It is this pattern of results, found in the random-effects regression performed for Study Two, that suggested the likelihood that this attenuation in depression scores at the second and third time-points was present. The presence of this measurement error had the unfortunate effect of hampering the interpretation of the cross-lagged regressions performed in Study Two, as an artificial attenuation in depression scores could result in a false negative in regards to the ability to predict an increase in depression scores based on use of expressive suppression.

Another limitation of the study, related to this measurement error, is the use of a cross-lagged regression model rather than using structural equation modelling to test the cross-lagged model. This decision was made reluctantly, as, in light of the problematic depression scores previously discussed, it was felt that the analysis could only provide a preliminary exploration of the directions of the suppression/depression relationship. To conduct structural equation modelling, which

is often used to test causal models, on problematic data was considered a potential over-analysis of that data. Thus, although a series of cross-lagged regressions comes with limitations in itself, it was considered the more conservative and appropriate analysis in the circumstances.

In regards to the interpretations of findings, it is noted that self-construal of the participants in the study is assumed from the birthplace of their parents, which may not be accurate. Australia is a very multicultural community, and so to assume independent self-construal in the Australian group based on parents being born in Australia may be assuming a more homogenous view of this group than is warranted. Indeed, the reason this group was not labelled “European Australians” in line with the labelling of previous studies, is because this ethnic identity could not be assumed. Likewise, the study grouped individuals from a number of Asian cultural backgrounds together which ignores the diversity that can be found in cultural values and socialisation practices between different Asian groups. The study assumed that children growing up in households with parents born in Asian countries would be growing up in an interdependent cultural context. However, this does not take into account the acculturation of both the parents and the child. Furthermore, even in groups which are culturally homogenous, within-group variation in the identification with cultural values such as individualism or collectivism cannot be assumed. An attempt was made to measure acculturation in this group by asking them how much they have adopted an Australian way of doing things, however measures of self-construal or of the level identification with cultural values would have been a more robust way of testing the assumptions being made about both cultural groups.

Another consideration in regards to the use of a bicultural sample is that the testing environment (in schools) may have influenced this group to respond in ways which are more culturally appropriate in Western cultural contexts. There is growing evidence that people with bicultural identities become quite competent at drawing on the qualities and characteristics which are appropriate for their cultural context (Phinney et al., 2006). Thus, it is possible that changing the testing environment may have changed the responding in this group. The use of more qualitative research techniques may also have assisted in drawing out some of these nuances and may have been more reflective of the dynamic nature of the acculturation process and cultural identity formation.

A further limitation of the study is the reliance exclusively on self-report measures. This is particularly problematic for cross-cultural studies, as previous research has found evidence of cultural differences in response bias (Johnson et al., 2005; Johnson et al., 2011). Of particular relevance to this study is the potential for greater acquiescence bias in the Asian Australian group. Findings from a cross-national study suggest that those from collectivist cultures, such as Asian cultures, are more likely to use an acquiescent response style on self-report measures (Johnson et al., 2005), however it is unclear if this poses a similar problem in bicultural samples. In addition, although the adult version of the ERQ has demonstrated consistent psychometric properties and a stable factor structure across a number of cultural groups (Balzarotti et al., 2010; Gross & John, 2003; Matsumoto, Yoo, Fontaine, et al., 2008), this has yet to be established with the child and adolescent version. Thus, a further limitation of the current study is that the cultural invariance of this measure cannot be assumed. Van Hemert et al. (2007) conducted a meta-analysis which investigated the extent to which findings of cross-cultural differences in

emotion research could be attributed to method-related factors such as bias. They found that effect sizes were considerably reduced after correcting for these factors. Given the statistical results of some of our findings are rather weak, the possibility of measurement error needs to be taken into account when interpreting these results. Further research which fully explores the equivalence of measures across cultural groups, controls for possible response bias, or which uses multiple methods of measurement, are required to reduce the likelihood of measurement error and demonstrate the replicability of the findings of the current study.

Despite these limitations, the study has a number of notable strengths. For instance, this is the first study to investigate cross-cultural differences in the use of expressive suppression in a child and adolescent sample. It is also the first to examine differences in the relationship between expressive suppression and depression, in both a child and adolescent sample, and using a bicultural group. There are also significant benefits to the use of a longitudinal design. This has allowed the study to establish that cultural differences in the use of expressive suppression are present at quite an early age in a bicultural sample, even when the majority of the sample was born in Australia. The study also demonstrated the acculturation effects on the use of expressive suppression in an Asian Australian group as they develop through adolescence, and revealed that this acculturation may be important when examining cross-cultural differences in the relationship between suppression use and maladjustment. Finally, the study also provided evidence of cross-cultural differences in the predictive relationship from depression to increased suppression, suggesting emotional reactivity in people with depression may differ between cultural groups. However, further research is required to establish whether the types of emotions being suppressed influences cross-cultural differences in the

relationship between use of suppression and maladjustment, and to identify other potential mediators of these relationships.

5.4 Conclusion

Research presented in this thesis provides further evidence of cross-cultural differences in the use of suppression and the relationship between suppression use and depressive symptomatology. However, the use of a child and adolescent sample, a bicultural comparison group, and a longitudinal design have allowed for examination of these relationships to go beyond what has been previously established in the literature.

Findings presented in Chapter Three established that cross-cultural differences in the use of suppression which were previously only found in adult samples can also be found in children as young as eight years old. It was found that the Asian Australian children and adolescents reported significantly greater use of expressive suppression than their Australian counterparts, supporting previous findings in adult samples. This finding indicates that even though the majority of the children in the Asian Australian group were born in Australia, it is still likely that they are being influenced by the cultural beliefs and values of their parent's original culture. However, the analysis of suppression use over time found evidence that as children and adolescents in the Asian Australian group developed, they reported less use of expressive suppression to regulate their emotions. This was in contrast to the Australian group, which reported stability in the use of expressive suppression over the same period. This suggests that as children develop through adolescence they are

becoming acculturated to Australian norms regarding emotional responding and making less use of expressive suppression as a result.

Chapter Four investigated whether the apparent differences in cultural expectations regarding emotional responding would have an impact on the link between the use of expressive suppression and depressive symptomatology previously established in Western samples. It was found that there were cultural differences in the relationship between more frequent use of expressive suppression and increased depressive symptomatology, with a weaker relationship found in the Asian Australian group. However, in contrast to previous studies which have investigated this relationship across international samples, it was found that this relationship was still present in the Asian Australian group. This may be due to acculturation in the Asian Australian group.

Also in Chapter Four, a preliminary investigation into the direction of the relationship between suppression use and depression over time found that in the Australian group, an increase in depressive symptoms was predictive of later increased use of expressive suppression. However, this predictive relationship was not found in the Asian Australian group, which provides further support for the previous findings of differences between these cultural groups in their emotion reactivity in response to depressive symptoms. However, further research is required to improve confidence in this finding.

Overall this thesis improves our understanding of cross-cultural differences in the use of expressive suppression, and how the use of expressive suppression changes as a result of acculturation. It also provides more detail regarding cross-cultural differences in the relationship between use of expressive suppression and

increased depressive symptomatology, finding that this relationship was still present in the bicultural group included in this study, but was significantly weaker than that found in the Australian group. Finally, it provides more information about the predictive relationships between depressive symptoms and suppression. It is recommended that future research continue to examine cross-cultural differences in the relationship between expressive suppression and maladjustment, and the variables which may moderate this relationship.

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APPENDICES

Appendix A:
Ethics Approval Letters

A.1 Monash university ethics committee approvals

11 June 2003



Assoc. Prof. Eleonora Gullone, Assoc. Prof. Neville King and Prof. Bruce Tonge
Department of Psychology
Clayton Campus

2003/122 - Adolescent internalising disorders and self conscious emotions

Thank you for the information provided in relation to the above project. The items requiring attention have been resolved to the satisfaction of the Committee. Accordingly this research is approved to proceed.

Terms of approval

The project is approved as submitted for a three year period from the date of this letter and this approval is only valid whilst you hold a position at Monash University. You should notify the Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events that might affect continued ethical acceptability of the project. Any changes to the research protocol require the submission and approval of an amendment. Substantial variations may require a new application. Please quote the project number above in any further correspondence and include it in the complaints clause which must be included in the explanatory statement and may be expressed more formally if appropriate:

You can complain about the study if you don't like something about it. To complain about the study, you need to phone +61 3 9905 2052. You can then ask to speak to the secretary of the Human Ethics Committee and tell him or her that the number of the project is _____. You could also write to the secretary. That person's address is:

*The Secretary
The Standing Committee on Ethics in Research Involving Humans
Building 3d, Monash University, Victoria 3800*

Progress reports

Continued approval of this project is dependent on the submission of annual progress reports and a termination report. Please ensure that the Committee is provided with an annual report by 20 December each year. A final report should be provided at the conclusion of the project. The Committee should be notified if the project is discontinued before the expected date of completion. The report form is available at <http://www.monash.edu.au/resgrant/human-ethics/forms-reports/index.html>.

Retention and storage of data

The Chief Investigators of approved projects are responsible for the storage and retention of original data pertaining to a project for a minimum period of five years. You are requested to comply with this requirement.

Dr Andrea Lines
Human Ethics Officer
Standing Committee on Ethics in Research Involving Humans



RESEARCH GRANTS AND
ETHICS BRANCH
Building 3A
Monash University
Victoria 3800 Australia
Telephone +61 3 9594 3012
Facsimile +61 3 9594 3833
Email: offices@ethics.monash.edu.au
www.monash.edu.au
ABN: 12 377 614 012



Standing Committee on Ethics in Research Involving Humans (SCERH)
 Research Office
 Assoc Prof Eleonora Gullone
 School of Psychology, Psychiatry and Psychological Medicine
 Faculty of Medicine, Nursing and Health Sciences
 Clayton Campus

19 April 2007

CF07/0440 - 2007/0143: Emotions project: Emotional development and wellbeing in children and adolescents

Dear Researchers,

Thank you for the information provided in relation to the above project. The items requiring attention have been resolved to the satisfaction of the Standing Committee on Ethics in Research Involving Humans (SCERH). Accordingly, this research project is approved to proceed.

Terms of approval

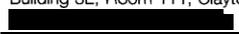
1. This project is approved for five years from the date of this letter and this approval is only valid whilst you hold a position at Monash University.
2. It is the responsibility of the Chief Investigator to ensure that all information that is pending (such as permission letters from organisations) is forwarded to SCERH, if not done already. Research cannot begin at any organisation until SCERH receives a letter of permission from that organisation. You will then receive a letter from SCERH confirming that we have received a letter from each organisation.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by SCERH.
4. You should notify SCERH immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project:** Changes to any aspect of the project require the submission of a Request for Amendment form to SCERH and must not begin without written approval from SCERH. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. Please provide the Committee with an Annual Report determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. SCERH should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by SCERH at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

All forms can be accessed at our website www.monash.edu.au/research/ethics/human/index.html

We wish you well with your research.


 Mrs Lyn Jenamessen
 Acting Human Ethics Officer (on behalf of SCERH)

Cc: Assoc Prof Neville King, Ms Elizabeth Hughes

Postal - Monash University, VIC 3800, Australia
 Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
 Facsimile +61 3 9905 1420
 www.monash.edu.au/research/ethics/human/index.html
 CRICOS Provider No. 00008C ABN 12 377 614 012

A.2 Victorian department of education and training approvals



Department of Education & Training

Office of School Education

SOS 002393

19 May 2003

Mr Sean Mac Dermott
 Department of Psychology
 Monash University
 CLAYTON 3168

Dear Mr Mac Dermott

Thank you for your application of 7 April 2003 in which you request permission to conduct a research study in Victorian government schools titled: *Adolescent Internalising Disorders and Self Conscious Emotions*.

I am pleased to advise that on the basis of the information you have provided your research proposal is approved in principle, subject to the conditions detailed below.

1. You obtain approval for the research to be conducted in each school directly from the principal. Details of your research, copies of this letter of approval and the letter of approval from the relevant ethics committee are to be provided to the principal. The final decision as to whether or not your research can proceed in a school rests with the principal.
2. No student is to participate in this research study unless they are willing to do so and parental permission is received. Sufficient information must be provided to enable parents to make an informed decision and their consent must be obtained in writing.
3. As a matter of courtesy, you should advise the relevant Regional Director of the schools you intend to approach. An outline of your research and a copy of this letter should be provided to the Regional Director.

2 Treasury Place
 East Melbourne, Victoria 3002
 Telephone: [REDACTED]
 DX 210083

GPO Box 4367
 Melbourne, Victoria 3001

Victoria
 The Place To Be

4. Any extensions or variations to the research proposal, additional research involving use of the data collected, or publication of the data beyond that normally associated with academic studies will require a further research approval submission.
5. At the conclusion of your study, a copy or summary of the research findings should be forwarded to me at the above address.

I wish you well with your research study. Should you have further enquiries on this matter, please contact Louise Dressing, Senior Policy Officer, Schools, Communities and Networks, on 9637 2349.

Yours sincerely



Judy Curson
Manager
Schools, Communities & Networks

encl.



Department of Education & Training

Office of Learning and Teaching

SOS003486

A/Prof Eleonora Gullone, et al
School of Psychology, Psychiatry and Psychological Medicine
Building 17
Monash University
Clayton Campus
CLAYTON 3800

Dear A/Prof Gullone, et al

Thank you for your application of 8 February 2007 in which you request permission to conduct a research study in government schools titled: *Emotions Project: Emotional Development and Wellbeing in Children and Adolescents*.

I am pleased to advise that on the basis of the information you have provided your research proposal is approved in principle subject to the conditions detailed below.

1. Should your institution's ethics committee require changes or you decide to make changes, these changes must be submitted to the Department of Education for its consideration before you proceed.
2. You obtain approval for the research to be conducted in each school directly from the principal. Details of your research, copies of this letter of approval and the letter of approval from the relevant ethics committee are to be provided to the principal. The final decision as to whether or not your research can proceed in a school rests with the principal.
3. No student is to participate in this research study unless they are willing to do so and parental permission is received. Sufficient information must be provided to enable parents to make an informed decision and their consent must be obtained in writing.
4. As a matter of courtesy, you should advise the relevant Regional Director of the schools you intend to approach. An outline of your research and a copy of this letter should be provided to the Regional Director.

2 Treasury Place
East Melbourne, Victoria 3002
Telephone: [REDACTED]
DX 210083

GPO Box 4367
Melbourne, Victoria 3001



5. Any extensions or variations to the research proposal, additional research involving use of the data collected, or publication of the data beyond that normally associated with academic studies will require a further research approval submission.
6. At the conclusion of your study, a copy or summary of the research findings should be forwarded to the Research and Development Branch, Department of Education, Level 2, 33 St Andrews Place, GPO Box 4367, Melbourne, 3001.

I wish you well with your research study. Should you have further enquiries on this matter, please contact Chris Warne, Project Officer, Research and Development Branch, by phone on [REDACTED] or by email at <[REDACTED]>.

Yours sincerely

[REDACTED]

John McCarthy
Assistant General Manager
Research and Innovation Division

26 / 7 / 2007

enc

A.3 Catholic education office approvals



CATHOLIC EDUCATION OFFICE

JAMES GOULD HOUSE
228 VICTORIA PARADE
EAST MELBOURNE VIC 3002

Telephone: (03) 9257 0223
Facsimile: (03) 9415 9325

CORRESPONDENCE TO
Email ADDRESS:

P.O. BOX 8, EAST MELBOURNE VIC 3002
director@kamein.catholic.edu.au
ABN 85 176 448 204

IN REPLY PLEASE QUOTE

GE03/0009

28 May 2003

Mr S MacDermott / Mr S Watson
PhD Students
Department of Psychology
Room 615
Building 17
MONASH UNIVERSITY VIC 3800

Dear Mr MacDermott and Mr Watson

I am writing with regard to your letter of 11 April 2003 in which you referred to your forthcoming research project into adolescent internalising disorders and self-conscious emotions. I understand that this research is part of your studies for the degree of PhD at Monash University. You have asked approval to approach Catholic schools in the Archdiocese of Melbourne as you wish to survey students aged 10-15 years and to carry out follow up testing on these students over three years.

I am pleased to advise that your research proposal is approved in principle subject to the following standard conditions.

1. The decision as to whether or not research can proceed in a school rests with the School Principal. So you will need to obtain approval directly from the Principal of each school that you wish to involve.
2. You should provide each Principal with an outline of your research proposal and indicate what will be asked of the school. A copy of this letter of approval, and a copy of notification of approval from the University's Ethics Committee, should also be included.
3. A Criminal Record check is necessary for all researchers visiting schools. A certificate may be obtained on application to the Victoria Police and this must be shown to the Principal before starting the research in each school.

...2

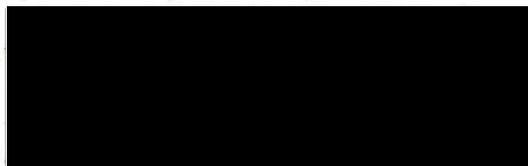
Mr S MacDermott & Mr S Watson - 2 - 28 May 2003

4. No student is to participate in the research study unless s/he is willing to do so and informed consent is given in writing by a parent/guardian.
5. You should provide the names of schools which agree to participate in the research project to the Information Services Unit of this Office.
6. Any substantial modifications to the research proposal, or additional research involving use of the data collected, will require a further research approval submission to this Office.
7. Data relating to individuals or schools are to remain confidential.
8. Since participating schools have an interest in research findings, you should discuss with each Principal ways in which the results of the study could be made available for the benefit of the school community.
9. At the conclusion of the study, a copy or summary of the research findings should be forwarded to the Information Services Unit of the Catholic Education Office.

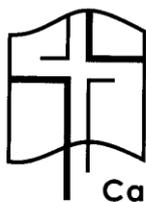
I wish you well with your research study. If you have any queries concerning this matter, please contact Mr Mark McCarthy of this Office.

Good wishes

Yours sincerely



Susan Pascoe
DIRECTOR OF CATHOLIC EDUCATION



Catholic Education Office
Archdiocese of Melbourne

In reply please quote:

GE07/0009
1275

22 March 2007

Associate Professor E Gullone
School of Psychology, Psychiatry and Psychological Medicine
Building 17
Clayton Campus
MONASH UNIVERSITY VIC 3800

Dear Professor Gullone

I am writing with regard to your letter of 2 February 2007 and the email from your research assistant, Ms Libby Hughes, of 21 March 2007 which give details of your forthcoming research project titled *Emotions project: Emotional development and wellbeing in children and adolescents*. You have asked approval to approach Catholic schools in Victoria, as you wish to survey students.

If you wish to approach schools outside Melbourne, you will need to get approval from the Directors of Catholic Education of the country dioceses. Their addresses are as follows:

<i>Diocese of Ballarat</i>	<i>Diocese of Sandhurst</i>	<i>Diocese of Sale</i>
Mr Larry Burn Director of Catholic Education Catholic Education Office PO Box 576 Ballarat Vic 3353	Mr Denis Higgins Director of Catholic Education Catholic Education Office 181 McCrae Street Bendigo Vic 3550	Dr Therese D'Orsa Director of Catholic Education Catholic Education Office PO Box 322 Warragul Vic 3820

However, I am pleased to advise that, in relation to schools in the Archdiocese of Melbourne, your research proposal is approved in principle subject to the following standard conditions. Additionally, I ask that you forward to this Office a copy of the notification of approval from the University's Ethics Committee when it becomes available.

1. The decision as to whether or not research can proceed in a school rests with the school's principal. So you will need to obtain approval directly from the principal of each school that you wish to involve.
2. You should provide each principal with an outline of your research proposal and indicate what will be asked of the school. A copy of this letter of approval, and a copy of notification of approval from the university's Ethics Committee, should also be included.

1 of 2

3. A Criminal Record check is necessary for all researchers visiting schools. A certificate may be obtained on application to the Victoria Police and this must be shown to the Principal before starting the research in each school.
4. No student is to participate in the research study unless s/he is willing to do so and informed consent is given in writing by a parent/guardian.
5. You should provide the names of schools which agree to participate in the research project to the Knowledge Management Unit of this Office.
6. Any substantial modifications to the research proposal, or additional research involving use of the data collected, will require a further research approval submission to this Office.
7. Data relating to individuals or schools are to remain confidential.
8. Since participating schools have an interest in research findings, you should discuss with each principal ways in which the results of the study could be made available for the benefit of the school community.
9. At the conclusion of the study, a copy or summary of the research findings should be forwarded to this Office. It would be appreciated if you could submit your report in an **electronic format** using the email address provided below.

I wish you well with your research study. If you have any queries concerning this matter, please contact Mr Mark McCarthy of this Office.

The email address is <km@ceo.melb.catholic.edu.au>.

Good wishes

Yours sincerely



Terri Hopkins
ACTING ASSISTANT DIRECTOR
POLICY AND GOVERNANCE

Appendix B:
Explanatory Letters and Consent Forms

B.1 Parent/guardian explanatory statement and consent form



Emotions and their relationship to Internalising Behaviours in Young People

Explanatory Statement for Parents/Guardians

Your child is invited to participate in a research project that is outlined below. Thank you for taking the time to read this Explanatory Statement.

Who is conducting this research project?

This research is being conducted through the Department of Psychology at Monash University, and is being supported by a grant from the Australian Research Council.

What is the research project about?

We all experience feelings of sadness, distress and anxiety from time to time. This project investigates how these depressive-type feelings relate to emotions such as guilt and empathy in the general population of children and adolescents. Therefore anyone between the ages of 9 and 14 is free to participate. We also want to investigate how other factors, such as parenting style, might influence these relationships.

Why do we need to do this research?

Unfortunately, adolescent depression is a very prevalent mental health problem that is on the increase, as today's youth face a variety of pressures. Once diagnosed, adolescent depression often continues through into adulthood, and has been linked to substance abuse, eating disorders and suicide.

By developing a better understanding of the relationships between depressive-type feelings and other emotions during the formative years, we will be in a better position to develop preventative strategies. This will enable us to step in *before* problems develop.

Why is my child being asked to participate?

We are looking for students between the ages of 9 and 14 years who are representative of the general Australian population. In addition, we will be recruiting participants of Vietnamese origin so that we can compare our results across cultures.

What will my child be required to do?

This study will continue over three years, however we will require each student's participation only once in each of these three years. On each occasion, your child will be asked to complete a number of questionnaires. Completion of all the questionnaires on any one occasion will take about one hour. A list of the questionnaires to be used is attached (page 5), and full copies of the questionnaires will be available at your child's school.

When and where will these measures be administered?

These measures will be administered at your child's school during regular class hours. In the event that your child changes schools during the course of the study, we will arrange for a mutually convenient location to be used (preferably at the new school).

What are the possible risks for my child?

In our previous work using these measures we have found it is unlikely that any distress will occur during your child's participation in the study. However, if any child becomes upset, their involvement will cease immediately and they will be given the opportunity to talk to their teacher or another suitably qualified person from their school.

Can my child or I be identified through this study? Will the information be confidential?

Should you decide to participate, all information will be collected on a coded basis so that identifying information will be stored separately from the other information your child provides. All of our results will be reported in purely statistical terms without reference to any individual child, family, or school. The collected information will be securely stored in locked filing cabinets within a non-public area of the Department of Psychology, and in password protected electronic files. This information will only be accessible to the researchers involved in this study. By law, we must keep this documentation for five years.

Please note that one of the questionnaires enables us to determine whether your child is at risk of psychological distress. If we find that your child's score indicates the possibility of concern, we will recommend to the school principal that further assessment be sought. It is important to note that the information obtained is *only* indicative of possible distress. No firm conclusions should be based on it.

How will I find out about the results of the study?

Feedback relating to the overall study findings will be made available through your school principal once the study is completed. In addition, we will send you an annual newsletter with up-dates about the progress of the study. Again, these findings will be reported *only* on a group basis so that there is no way any individual's responses will be identifiable. Application to gain access to your child's data may be made in accordance with the relevant provisions of the Privacy Act.

Where to from here?**How can I indicate that I would like my child to be involved?**

If you would like to be involved, please complete and return the appropriate section (marked **YES**) on the attached 'Informed Consent Form' (page 4) to indicate your consent for your child to participate in this research. You will notice that we also ask a few questions about yourself on the consent form. If you consent to your child's participation please answer these questions.

All children who receive parental consent will be presented with their own consent form before we involve them in the research. Even if they agree to be involved, they will clearly be advised that they can stop at any time if they change their mind or become upset.

What if I do not want my child to be involved?

Again, we would ask that you complete and return the appropriate section (marked **NO**) on the attached 'Informed Consent Form' (page 4) indicating your desire not to be involved. This way we are aware that you have received, and considered your child's involvement.

Informed Consent Form
**Emotions and their relationship to Internalising Behaviours in
 Young People**

Please complete only one of the following boxes, indicating that either 'YES', you give consent, or 'NO', you do not give consent, to your child's involvement.

YES. I,(Parent's/Guardian's full name), voluntarily consent to, __ / __ / __ (child's full name, and date of birth), participating in the above Monash University research project.

I have read and understood the letter of explanation and know that I am free to withdraw my child at any time, and that my child is free to withdraw at any time he or she wishes. I further understand that any information provided by my child or myself is strictly confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

Home Address:

Postcode: Email:.....

Telephone:..... (AH)..... (mobile).....(other)

Country of birth – Parent/Guardian 1:

Country of birth – Parent/Guardian 2 (if applicable):

Occupation – Parent/Guardian 1:

Occupation – Parent/Guardian 2 (if applicable):

Signature: Date:

NO. I,(Parent's/Guardian's full name), **do not** consent to.....(Child's full name), participating in the above Monash University research project.

Signature:

Date:.....:

Further Information Request Form

Do you want more information about this project?

If you have questions about the project you would like answered in Vietnamese, please write your question in the box below, detach this page and return it to us in the envelope provided.

If you have questions about the project you would like answered in English, you can contact us at:

Dr Eleonora Gullone (Associate Professor)

████████████████████

██

Department of Psychology, P.O. Box 17, Monash University, 3800

Sean MacDermott (PhD Student)

████████████████████

██

Department of Psychology, P.O. Box 17, Monash University, 3800

Shaun Watson (PhD Student)

████████████████████

██

Department of Psychology, P.O. Box 17, Monash University, 3800

B.2 Child/adolescent explanatory statement and consent form

EXPLANATORY STATEMENT FOR ADOLESCENTS

Hello,

Our names are Shaun Watson and Sean MacDermott. We are from Monash University and are at your school today because we are interested in the ways that students your age feel and think about different situations. I would like to ask you some questions about yourself, things that you like / don't like, and how you might act or feel in different situations. I also would like to ask some questions about you and your parents/guardians. The questions are not tests, so you can't get them right or wrong. However, some answers may indicate that you may benefit from support. If this applies to you, we may inform your principal so that help may be provided. Your involvement will require about one hour.

If you would like to participate, you have the choice to say yes, but if you don't, you can say no. If you say yes and start answering questions but become upset or change your mind, you can stop by putting up your hand and I will come and take the papers away.

This is a three-year study. If you agree to participate, you will be invited to participate again next year and the year after that. However, by saying yes today, you are not committing yourself for three years because we will give you the option of saying no later on if you are not interested in being involved again.

If you would like to be involved, please fill in the section below:

ADOLESCENT INFORMED CONSENT FORM

I would like to be involved in this project. Yes No

My Name:

My Signature:

Today's Date:

Appendix C:
Measures

Note: CDI omitted due to copyright restrictions

C.1 Demographics

Demographics

Please answer the following questions about yourself and your family.

My name is ...

I am a ... girl boy

Today's date is ...

My birthday is ... _____ / _____ /19_____.

My age is _____ years

My school is

... _____

I am in grade/year ...

I was born in

_____ (country)

My mother was born in

_____ (country)

My father was born in

_____ (country)

What language/languages do you speak at home?

How long have you lived in Australia?

0-5 years 6-10 years 11-15 years always

How much have you adopted Australian ways of doing things?

not at all a little much very much

C.2 ERQ-CA

ERQ-CA

Below are a number of statements. Please read each statement, and then **circle the choice that seems most true for you**. Some of the statements may seem the same but they are different in important ways, so be sure to read carefully.

1. When I want to feel happier, I think about something different.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
2. I keep my feelings to myself	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
3. When I want to feel less bad (e.g., sad, angry or worried), I think about something different.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
4. When I am feeling happy, I am careful not to show it.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
5. When I'm worried about something, I make myself think about it in a way that helps me feel better.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
6. I control my feelings by not showing them	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
7. When I want to feel happier about something, I change the way I'm thinking about it.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
8. I control my feelings about things by changing the way I think about them.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
9. When I'm feeling bad (e.g., sad, angry, or worried), I'm careful not to show it.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree
10. When I want to feel less bad (e.g., sad, angry, or worried) about something, I change the way I'm thinking about it.	Strongly Disagree	Disagree	Half and half	Agree	Strongly Agree

Appendix D:
Detailed Statistics for Studies One and Two

D.1 Studies One and Two: Correlation Matrix

Table 1.
Correlations between ER Strategies, CDI scores, Cultural Background, Age, SES, and Acculturation for all Three Time Points

Variable	1.	2.	3.	4.	5.	6.	7.
Time 1 (N = 791)							
1. Expressive suppression	—						
2. Cognitive reappraisal	-.06	—					
3. CDI	.30***	-.27***	—				
4. Cultural background	.26***	.07*	-.03	—			
5. Age	-.20***	-.08*	.05	-.14***	—		
6. SES	-.13***	-.00	-.07*	-.29***	.03	—	
7. Acculturation	-.19***	-.05	-.03	-.62***	.16***	.26***	—
8. Gender	-.11**	.07	.04	.04	.10**	-.01	-.01
Time 2 (N = 666)							
1. Expressive suppression	—						
2. Cognitive reappraisal	-.01	—					
3. CDI	.34***	-.27***	—				
4. Cultural background	.21***	.13**	-.01	—			
5. Age	-.08*	-.10*	.09*	-.15***	—		
6. SES	.03	-.07	-.05	-.26***	.04	—	
7. Acculturation	-.16***	-.10**	-.03	-.63***	.16***	.26***	—
8. Gender	-.24***	.03	.01	.05	.08	-.02	.02
Time 3 (N = 621)							
1. Expressive suppression	—						
2. Cognitive reappraisal	-.15***	—					
3. CDI	.36***	-.32***	—				
4. Cultural background	.23***	.16***	-.08*	—			
5. Age	-.10*	-.04	.09*	-.13***	—		
6. SES	-.06	-.04	-.02	-.30***	.05	—	
7. Acculturation	-.15***	-.10*	.03	-.63***	.15***	.27***	—
8. Gender	-.15***	.04	.08*	.03	.10**	.02	.00

Note. Cases deleted listwise. Asian cultural background and female gender keyed higher, therefore positive correlations indicate higher scores than Australian cultural background and males, respectively.

* $p < .05$, ** $p < .01$, *** $p < .001$.

D.2 Study Two: Regression 1

Table 2. *Summary of Hierarchical Regression Analysis for Variables Predicting CDI scores at Time 2 for Entire Sample.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.58	.33	.33	66.01***
CDI(T1)	.57	17.88***	.32				
Cultural background	.03	.93	.00				
Gender	-.00	-.13	.00				
Age (T2)	.07	2.26*	.01				
SES	.00	.06	.00				
Step 2				.58	.34	.00	2.78
ERQ Supp (T1)	.06	1.67	.00				

Note. * $p < .05$, *** $p < .001$

D.3 Study Two: Regression 2

Table 3. *Summary of Hierarchical Regression Analysis for Variables Predicting CDI scores at Time 3 for Entire Sample.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.62	.38	.38	65.18***
CDI(T2)	.60	17.57***	.36				
Cultural background	-.09	-2.62**	.001				
Gender	.06	1.71	.00				
Age (T3)	.01	.19	.00				
SES	-.06	-1.79	.00				
Step 2				.62	.38	.00	3.41
ERQ Supp (T2)	.07	1.85	.00				

Note. ** $p < .01$, *** $p < .001$

D.4 Study Two: Regression 3

Table 4. *Summary of Hierarchical Regression Analysis for Variables Predicting ERQ Suppression scores at Time 2 for Entire Sample.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.49	.24	.24	41.86***
ERQ Supp (T1)	.38	10.69***	.13				
Cultural background	.14	3.89***	.02				
Gender	-.20	-5.94***	.04				
Age (T2)	.03	.97	.00				
SES	.04	1.20	.00				
Step 2				.51	.26	.02	15.09***
CDI (T1)	.14	3.89***	.02				

Note. *** $p < .001$

D.5 Study Two: Regression 4

Table 5. *Summary of Hierarchical Regression Analysis for Variables Predicting ERQ Suppression scores at Time 3 for Entire Sample.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.54	.29	.29	43.47***
ERQ Supp (T2)	.48	12.19***	.20				
Cultural background	.11	2.74**	.01				
Gender	-.04	-1.12	.00				
Age (T3)	-.05	-1.45	.00				
SES	-.02	-.53	-.00				
Step 2				.55	.31	.02	14.05***
CDI (T2)	.15	3.75***	.02				

Note. ** $p < .01$, *** $p < .001$

D.6 Study Two: Regression 5

Table 6. *Summary of Hierarchical Regression Analysis for Variables Predicting CDI scores at Time 2 for Australian group.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.64	.40	.40	55.44***
CDI (T1)	.64	14.73***	.40				
Gender	-.03	-.75	.00				
Age (T2)	.07	1.63	.01				
SES	.04	.93	.00				
Step 2				.64	.41	.00	.76
ERQ Supp (T1)	.04	.87	.00				

Note. *** $p < .001$

D.7 Study Two: Regression 6

Table 7. *Summary of Hierarchical Regression Analysis for Variables Predicting ERQ Suppression scores at Time 2 for Australian group.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.49	.24	.24	25.34***
ERQ Supp (T1)	.43	8.63***	.17				
Gender	-.19	-3.79***	.03				
Age (T2)	.06	1.13	.00				
SES	.08	1.59	.01				
Step 2				.52	.27	.03	15.10***
CDI (T1)	.20	3.89***	.03				

Note. *** $p < .001$

D.8 Study Two: Regression 7

Table 8. *Summary of Hierarchical Regression Analysis for Variables Predicting CDI scores at Time 2 for Asian Australian group.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.51	.26	.26	23.53***
CDI (T1)	.50	10.53***	.25				
Gender	.03	.60	.00				
Age (T2)	.07	1.39	.00				
SES	-.05	-1.00	.00				
Acculturation	.00	.09	.00				
Step 2				.51	.27	.00	1.95
ERQ Supp (T1)	.07	1.40	.00				

Note. *** $p < .001$

D.9 Study Two: Regression 8

Table 9. *Summary of Hierarchical Regression Analysis for Variables Predicting ERQ Suppression scores at Time 2 for Asian Australian group.*

Variable	β	t	sr^2	R	R^2	ΔR^2	F_{change}
Step 1				.43	.18	.18	14.59***
ERQ Supp (T1)	.33	6.44***	.10				
Gender	-.23	-4.52***	.05				
Age (T2)	.01	.17	.00				
SES	-.00	-.04	.00				
Acculturation	-.01	-.25	.00				
Step 2				.43	.19	.01	2.60
CDI (T1)	.08	1.61	.01				

Note. *** $p < .001$