



MONASH University

*Cross-Cultural Differences in Emotion Regulation with Respect to  
Posttraumatic Stress Disorder*

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### List of Terms

<b>AAQ-II</b>	The Acceptance and Action Questionnaire II
<b>ABS</b>	Australian Bureau of Statistics
<b>APA</b>	American Psychiatric Association
<b>APS</b>	Australian Psychological Society
<b>CAPS-5</b>	Clinician-Administered PTSD Scale for DSM-5
<b>CBT</b>	Cognitive Behavior Therapy
<b>CIMH</b>	Cultural Influences on Mental Health model
<b>CIRSRM</b>	Culturally Informed Illness Representation Self-Regulation Model
<b>DERS</b>	Difficulties in Emotion Regulation Scale
<b>EDA</b>	Electrodermal Activity
<b>ERQ</b>	The Emotion Regulation Questionnaire
<b>NICE</b>	National Institute for Health and Care Excellence
<b>PSWQ</b>	Penn State Worry Questionnaire
<b>PTSD</b>	Posttraumatic Stress Disorder
<b>RCT</b>	Randomized Controlled Trial
<b>RIQ</b>	Response to Intrusions Questionnaire
<b>RMSSD</b>	Root Mean Square of the Successive Differences
<b>RSQ</b>	Response Styles Questionnaire
<b>SPAARS</b>	Schematic, Propositional, Analogy, and Associative Representational Systems model
<b>WBSI</b>	White Bear Suppression Inventory
<b>WHO</b>	World Health Organization



## Abstract

The development, maintenance, and treatment of posttraumatic stress disorder (PTSD) are all intrinsically linked to the processes of emotion regulation. Although research investigating emotion regulation in PTSD has primarily been conducted in Western populations, cross-cultural research suggests that there are cultural differences in the ways in which individuals self-regulate their emotions. However, to date, research has not examined cross-cultural differences in emotion regulation in the context of PTSD. This thesis, therefore, aimed to investigate the interaction between culture and emotion regulation in PTSD. The specific aims of the current research were to: 1) review previous research on PTSD, emotion regulation, and cultural differences in emotion regulation (Aim 1), 2) investigate cultural differences in expressive suppression in healthy controls within the context of an analogue stressor (Aim 2; Paper 1), 3) investigate cultural differences in expressive suppression, thought suppression, rumination, worry, experiential avoidance, and reappraisal in trauma survivors with and without PTSD (Aim 3, Paper 2), and 4) propose a framework to support clinicians in conducting culturally-sensitive cognitive behavior therapy (CBT) (Aim 4; Paper 3).

In Study 1 (Paper 1), Caucasian Australian ( $n = 41$ ) and East Asian Australian ( $n = 41$ ) healthy individuals participated in the trauma film paradigm. Participants were randomly allocated to either a group that received instructions to suppress their emotions, or a control group that received no instructions. Both groups then watched a distressing film. Physiological measures (heart rate variability and skin conductance) were taken before, during, and after the film. Participants also recorded intrusive film-related memories in the five minutes and seven days post-viewing. It was found that the East Asian suppression group demonstrated significantly higher heart rate variability during the film than the East Asian control group, but this difference was not replicated in the Caucasian groups. Further,

participants in the suppression groups recorded significantly fewer intrusions immediately post-film, irrespective of cultural background. Finally, although intrusions followed a general trend of decreasing over the week, for the Caucasian suppression group alone, intrusions started to increase again towards the end of the week.

In Study 2 (Paper 2), Caucasian Australian (n = 31) and East Asian Australian (n = 38) trauma survivors with and without PTSD completed a battery of emotion regulation questionnaires and a clinical interview. This study aimed to extend the findings of Study 1 by exploring expressive suppression in trauma survivors, as well as investigating other relevant emotion regulation strategies identified in PTSD literature. It was found that Caucasian Australians with PTSD reported significantly greater worry, expressive suppression, thought suppression, rumination, experiential avoidance, and general emotion dysregulation compared to Caucasian Australians without PTSD. East Asian Australians with PTSD reported greater rumination and experiential avoidance than East Asian Australians without PTSD. However, no differences were found between East Asian Australians with and without PTSD with respect to worry, expressive suppression, thought suppression, or general emotion dysregulation.

Finally, the Paper 3 applied the findings from Studies 1 and 2 in order to identify key variables to address when modifying CBT for culturally diverse individuals. Cross-cultural research in analytic and holistic thinking styles, perceptions of negative emotions, and independent and interdependent self-construals were explored in the context of CBT.

The cultural differences in emotion regulation observed in this research have clinical implications with respect to culturally appropriate treatment and assessment. Further research is needed to evaluate the robustness of the current findings, as well as to investigate the cultural mechanisms underpinning the observed cultural differences.

### Thesis Including Published Works Declaration

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 three submitted publications. The core theme of the thesis is cross-cultural differences in emotion regulation in the context of posttraumatic stress disorder. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the School of Psychological Sciences and Turner Institute for Brain and Mental Health under the supervision of Dr Laura Jobson and Professor Peter Norton.

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 three chapters, my contribution to the work involved the following:

Thesis Chapter	Publication Title	Publication Status	Nature and extent of student contribution	Co-author name/nature of contribution	Co-author Monash student
3	Investigating cultural differences in the effects of expressive suppression when processing traumatic distressing material.	Submitted, under review	75% contribution by student. This included formulation of experimental design, data collection, analysis, and writing the manuscript	2. Peter Norton, input into manuscript 5%. 3. Laura Jobson, input into manuscript 20%	2. No. 3. No
4	Exploring cultural differences in the use of emotion regulation strategies in	Submitted, under review	75% contribution by student. This included formulation of experimental design, data collection, analysis,	2. Laura Jobson, input into manuscript 25%	2. No

	posttraumatic stress disorder		and writing the manuscript		
5	Culture, emotion regulation, and their relevance in cognitive behavior therapy and individual case conceptualization	Submitted, under review	60% contribution by student, equal first co-author. This included writing the manuscript and editing of authors' sections	2. Laura Jobson, input into manuscript 30% 3. Nikolaos Kazantzis, input into manuscript 10%	2. No. 3. No

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I have renumbered sections of submitted papers, including figures and tables, in order to generate a consistent presentation within the thesis.

**Student name:** Amanda Nagulendran

**Student signature:**

**Date:** 09/07/2019

I hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

**Primary supervisor name:** Laura Jobson

**Primary supervisor Signature**

**Date:** 09/07/2019

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Thank you to all of the individuals who participated in my research. To my healthy controls, I hope your interest in scientific research continues to grow. Lastly, to the many trauma survivors I interviewed who wanted to help others by sharing their experiences: I am awed by your courage and your strength. I wish you all the best for your ongoing recovery.

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## Chapter 1: Overview

Posttraumatic stress disorder (PTSD) is a significantly disabling psychological condition that can occur following exposure to one or more potentially traumatic events. PTSD is a cross-culturally validated diagnosis, with cases now identified in most societies and cultures (Foa, Keane, Friedman, & Cohen, 2009). Difficulties with emotion regulation (i.e., the ability to manage the intensity, duration, and expression of emotions when required in order to meet goals or situational demands; Gratz & Roemer, 2004) contribute to the impaired psychosocial functioning of PTSD sufferers. Thus, emotion regulation processes have been identified as a critical factor in the development and maintenance of PTSD, and a target of evidence-based treatments (Difede, Olden, & Cukor, 2014). Considerable cross-cultural literature has demonstrated that emotion regulation processes vary between cultural groups. However, to date, no research has explored cultural differences in emotion regulation in the context of PTSD. In order to address this significant gap in the literature, the current research investigated cultural differences (East Asian Australian versus Caucasian Australian) in the relationships between emotion regulation strategies and PTSD. In order to do this, the current research focused on six emotion regulation methods frequently associated with PTSD in Western samples: expressive suppression, thought suppression, rumination, worry, experiential avoidance, and reappraisal. This research aimed to further understanding of the development and maintenance of PTSD in non-Western cultural groups.

## Chapter 2: Literature Review

### 2.1 Posttraumatic Stress Disorder (PTSD)

PTSD is a psychological condition that can develop after exposure to one or more potentially traumatic events. Such events include exposure to actual or threatened death, serious injury, or sexual violence. This exposure may be through direct experience of the event, witnessing the event happen to another individual, learning that the traumatic event has occurred to a close family member or friend, or being subjected to repeated or extreme exposure to aversive details of the event, such as in first responders (Criterion A) (American Psychiatric Association; APA, 2013). Symptoms of PTSD include recurrent and involuntary distressing memories or dreams of the event, dissociative reactions, and marked physiological and/or psychological reactions to cues that symbolize or resemble the event (Criterion B). Individuals often avoid both internal and external stimuli associated with the event (Criterion C). They can also experience negative changes in thoughts and mood regarding the trauma, which can include changes in how individuals view themselves (e.g., “I am helpless) and the world (e.g., “the world is dangerous”), as well as an increase in negative mood states, such as sadness and anger (Criterion D). Individuals with PTSD may also experience changes in arousal or reactivity, such as hypervigilance, angry outbursts, irritability, sleep disturbance, and an exaggerated startle response (Criterion E) (APA, 2013). Symptoms of psychological distress are considered a normal response immediately post-trauma. It is only when these symptoms are severe, persistent, or worsen over time that they are considered pathological. As such, these symptoms are required to be present for at least one month to meet DSM-5 criteria for PTSD (Criterion F) (APA, 2013). Finally, PTSD is widely recognized to be associated with impairments in functioning across several psychosocial domains, including occupational functioning, parenting, and socializing (Criterion G) (APA, 2013; Holowka & Marx, 2012).

PTSD is frequently comorbid with major depressive disorder, and associated with increased risk of panic disorder, agoraphobia, obsessive-compulsive disorder, specific phobias, and substance abuse (Creamer, Burgess, & McFarlane, 2001). Given the cumulative nature of these stressors, it is perhaps unsurprising that individuals with PTSD are up to 9.8 times more likely to complete suicide than those without PTSD (Gradus et al., 2010).

## 2.2 Prevalence

PTSD is a highly prevalent mental disorder in Australians, second only to depression, with up to 800,000 Australians experiencing PTSD at any one time (Brown, 2013). Women are almost twice as likely to experience PTSD as men, with 12-month prevalence rates of 8.3% and 4.6%, respectively (*National Survey of Mental Health and Wellbeing Summary of Results*, 2008). However, it is important to highlight that although an estimated 50-70% of individuals are exposed to traumatic events over the course of their lifetime, only 15-25% of this group develop PTSD (Breslau, 2001). Thus, exploring why some individuals develop PTSD, but not others, is central to understanding (and therefore treating) this disorder.

PTSD symptomatology has been observed across most societies and cultural groups (Foa et al., 2009; Hinton & Lewis-Fernández, 2011). Additionally, the number of countries publishing research papers on PTSD is steadily increasing (Figueira et al., 2007), further supporting the cross-cultural validity and acceptance of the disorder. Ishikawa, Kawakami, and Kessler (2016) reported a 0.7% 12-month prevalence of PTSD in Japan, while Shen and colleagues (2006) calculated a 0.2% 12-month prevalence rate in China. Both studies obtained their data from the World Health Organization (WHO) World Mental Health Survey Initiative (Demyttenaere et al., 2004). WHO has yet to collect data on PTSD prevalence rates in other East Asian countries. However, Cho and colleagues (2007) found a 12-month prevalence rate of 0.7% in South Korea using data from the Korean Epidemiologic Catchment Area study. Overall, the prevalence of PTSD has been found to be lower in Asian



samples than in Caucasian samples (Cho et al., 2007; Hinton & Lewis-Fernández, 2011). de Vaus, Hornsey, Kuppens, and Bastian (2018) explored three potential confounding factors in this finding: conscious nondisclosure of symptoms due to mental health stigma, failure to capture culturally-specific forms of disorder, and underassessment of somatization. They concluded that although it may be impossible to definitively determine the validity of cross-cultural differences in rates of psychopathology, the precautionary principle would argue that alternative explanations for these observed cultural differences merit significant exploration.

This thesis will focus on cultural differences between Caucasian Australian and East Asian Australian individuals. East Asian Australians were selected because East Asian countries are the source of Australia's largest non-Western immigrant population. As of 2018, North-East, South and Central Asia were the most common regions of origin for Australian migrants (Australian Bureau of Statistics; ABS, 2018). With respect to culturally and linguistically diverse groups in Australia, Minas and colleagues (2013) suggest that prevalence rates of mental disorders in East Asian migrants are similar to those observed in the general population. Given the prominent presence of this cultural group, there are clear implications for Australian-trained psychologists to understand cross-cultural differences in mental health disorders in order to effectively treat clients identifying as East Asian Australian.

### **2.3 Societal Cost**

The far-reaching effects of PTSD on both individuals and their communities mean that PTSD is a high-burden disorder (Kessler, 2000). The financial costs of PTSD are incurred through reduced earning capacity, higher access to health services, days off work, and direct treatment costs (Phoenix Australia, 2013). Indeed, PTSD has been found to be the most expensive anxiety-related disorder to treat, costing more per case than panic disorder, social phobia, and general anxiety disorder (Issakidis, Sanderson, Corry, Andrews, &

Lapsley, 2004). However, an Australian study of healthcare costs of individuals involved in motor vehicle accidents found that while PTSD cases cost more to treat than non-PTSD cases, untreated PTSD cases incur significantly higher economic losses than both treated PTSD cases and non-PTSD cases (Chan, Medicine, Air, & McFarlane, 2003). Economic losses were defined as loss of earning capacity after the accident, as well as loss of earning potential (i.e., how much the individual would be likely to earn in the future). Thus, although the treatment of PTSD is expensive, it is clear that not treating PTSD is even more so. When considering the economic burden of PTSD, Phoenix Australia (2013) argues that PTSD carries a level of disability which is possibly higher than that of any other physical or mental disorder.

## **2.4 Emotion Regulation**

Several cognitive processes have been identified as instrumental in explaining the development and maintenance of PTSD. These include autobiographical memory, fear conditioning, cognitive appraisals, emotion regulation, and memory storage and retrieval (Brewin & Holmes, 2003). The focus of this review will be on emotion regulation, a factor that is interwoven into many of the models of PTSD.

Emotion regulation can broadly be defined as the ways in which individuals modify their own emotional experiences and expressions (Gross, 2014). Emotions are typically modified to help individuals achieve goals or meet situational needs (Gratz & Roemer, 2004). Two models of emotion regulation will be discussed: 1) Gratz and Roemer's (2004) model of emotion regulation, and 2) the process model of emotion regulation (Gross, 1998a; Gross, 1998b).

### **2.4.1 Gratz and Roemer's (2004) model of emotion regulation**

Gratz and Roemer's (2004) model involves four key components: a) the awareness and understanding of one's emotions, b) acceptance of these emotions, c) the ability to refrain

from impulsive behaviors and act in accordance with one's goals while experiencing negative emotions, and d) the ability to use regulation strategies that are appropriate for the situation at hand. Gratz and Roemer argue that awareness and acceptance of emotion are both necessary in order to select appropriate emotion regulation strategies, and ultimately shape behaviors to meet situational needs. That is, awareness and acceptance of emotion allow individuals to experience and therefore differentiate between a full range of emotions, thereby allowing individuals to acquire adequate information to respond appropriately (Gratz & Roemer, 2004). For example, an individual who aims to push aside fear during an intense argument with a spouse may consequently not be aware that they are feeling threatened in this situation. Therefore, they may misinterpret the emotion as anger, rather than fear. This misperception is likely to lead to behaviors that align with anger but do not meet the individual's need for feeling safe. Indeed, the anger-related behaviors may escalate the conflict, which would in turn lead to greater fear and further emotion dysregulation. It is therefore unsurprising, then, that trait mindfulness, which includes both acceptance and non-judgement of emotional responses, is negatively associated with symptoms of PTSD (Reffi, Pinciotti, Darnell, & Orcutt, 2019). That is, increased awareness and acceptance of emotions is likely to lead to more effective emotion regulation (because the individual is better able to identify the optimal strategy for a given situation), thereby decreasing the likelihood of dysregulation expressed as PTSD symptoms.

In addition to awareness and acceptance of emotions, individuals also need to be aware of and well-practiced in a range of emotion regulation methods in order to choose the most appropriate method for a given situation. This argument is consistent with Linehan's (1993) conceptualization of emotion dysregulation as a skills deficit, which can be improved through teaching methods to self-regulate. Linehan (1993) hypothesized that individuals with limited awareness of emotion regulation strategies are likely to repeat the strategies that they

are most familiar with, (e.g., self-harm to reduce distress in borderline personality disorder), despite the repeated experiences of negative long- and short-term consequences. As such, individuals need to be aware of a range of methods for regulating emotion in order to select an appropriate and adaptive method for a situation. Preliminary research suggests that even a single session intervention teaching emotion regulation skills to veterans with PTSD can have clinically significant benefits with respect to reduction of aggressive behavior (Miles, Thompson, Stanley, & Kent, 2016), which is a characteristic expression of emotion dysregulation in PTSD (Miles, Menefee, Wanner, Teten Tharp, & Kent, 2016). Further, a randomized controlled trial (RCT) found that preparing trauma survivors with emotion regulation skills prior to commencing cognitive behavior therapy (CBT) enhanced treatment outcome, resulting in fewer treatment drop outs, lower PTSD severity, lower anxiety, and fewer negative appraisals when compared to patients who only received counseling support prior to CBT (Bryant et al., 2013). Awareness and practice of emotion regulation skills can thus be central to improving emotion regulation in PTSD sufferers. Finally, Gratz and Roemer (2004) stress the importance of the ability to refrain from impulsive behavior when experiencing negative emotions as a core component of emotion regulation. This is consistent with findings that emotion dysregulation mediates the relationship between PTSD symptoms and impulsive behavior (Weiss, Tull, Viana, Anestis, & Gratz, 2012). That is, difficulties with this key competency are likely to explain the association between PTSD symptoms and a range of potentially harmful behaviors, including risky sexual behaviors and illicit drug use.

#### **2.4.2 Process model of emotion regulation**

Gross's process model of emotion regulation (1998a, 1998b) focuses primarily on the ability to use emotion regulation strategies to alter emotional responses. This model delineates five processes of emotion regulation which are categorized by the order in which each one can be deployed during the experience of an emotion. This model is regarded to be

one of the most extensively researched and validated model of emotion regulation (Chambers, Gullone, & Allen, 2009). The five processes described are:

- Situation selection. This includes the decisions an individual makes to approach or avoid certain people, places, or objects in order to control their emotions. This strategy is frequently observed in PTSD. For example, a motor vehicle accident survivor may choose to avoid physical reminders of the traumatic event, such as the intersection where the accident took place, because these reminders evoke strong negative emotions.
- Situation modification. This refers to how an individual actively alters a situation in order to achieve a desired emotional experience. An example of this could be changing the topic of a conversation when it approaches distressing content.
- Attentional deployment. This process focuses on what an individual pays attention to when interacting with another person or object, or within a given situation. Examples of attentional deployment include distraction, concentration, and rumination (Gross, 1998a).
- Cognitive change. This includes how an individual re-evaluates either the current situation or one's ability to manage the situation in order to influence their emotions. One example of this is reminding oneself of wisdom that has been gained through a difficult experience.
- Response modulation. This refers to how an individual goes about influencing their emotions after an appraisal has led to a full emotional response. An example of this could be an individual who tries to maintain a neutral facial expression while being criticized by an intimate partner.

Gross (1998a) distinguishes between antecedent- and response-focused emotion regulation. Antecedent-focused regulation occurs prior to an emotional response, behavioral

change, or physiological change. This includes attentional deployment, situation selection, situation modification, and cognitive change. Response-focused regulation occurs after the emotional response has already been generated and includes response modulation, which typically involves efforts to suppress the expression or experience of emotion.

Webb, Miles, and Sheeran (2012) elaborate on several subtypes within the five processes outlined in Gross's model. Within the category of attentional deployment, for example, they further differentiate between distraction and concentration. They subdivide distraction into active positive distraction, passive positive distraction, active neutral distraction, and passive neutral distraction. See Table 1 in Webb et al. (2012) for a full list of strategy subtypes and definitions. Of particular interest to the current research is the subdivision of cognitive change. Webb and colleagues sub-divided cognitive change into reappraisal of emotional response (e.g., evaluating an emotion as acceptable/unacceptable), reappraisal of the emotional stimulus (e.g., reinterpreting the cause or context of the emotion), and reappraisal via perspective taking (e.g., imagining the situation from another person's perspective). In a meta-analysis of the effectiveness of these sub-strategies, reappraising the emotional response was found to be less effective than reappraising the emotional stimulus or using perspective taking (Webb et al., 2012).

While the ability to regulate emotions successfully is undoubtedly adaptive, some methods of emotion regulation have been identified as being less helpful. The negative outcomes of some behavioral methods of emotion regulation (e.g., illicit drug use, binge drinking, social withdrawal, and interpersonal aggression) are easily identified (i.e., social, financial, occupational and legal costs). However, it is often difficult to identify the potential negative impacts of more internal, cognitive methods of emotion regulation. Expressive suppression, thought suppression, rumination, worry, and experiential avoidance are all cognitive processes which have been identified as potentially maladaptive. In a meta-analytic

review of emotion regulation strategies across psychopathology, Aldao, Nolen-Hoeksema, and Schweizer (2010) found that avoidance, suppression, and rumination were positively associated with psychopathological symptoms ( $r_+ = 0.34 - 0.49$ ). Conversely, reappraisal was negatively associated with these symptoms ( $r_+ = -0.14$ ). Similar findings have been established within the context of PTSD (discussed further in *Emotion Regulation and PTSD*) (Seligowski, Lee, Bardeen, & Orcutt, 2015).

This thesis has focused on these cognitive processes of emotion regulation.

Suppression can be delineated into two concepts: expressive suppression, which is defined as inhibiting the outward expression of an emotion (Clapp, Patton, & Beck, 2015) and thought suppression, which involves suppressing a specific thought and the emotions associated with it (Wegner, 1989). Rumination can be defined as dwelling on one's symptoms of distress and their consequences (McLaughlin & Nolen-Hoeksema, 2011), such as making an extensive phone call to a friend to complain about missing out on a promotion and how awful it feels to be passed over. Worry is in some ways the opposite of rumination; rather than a focus on past misfortune, worry can be defined as a tendency to focus on the possibility of events going wrong in the future (Borkovec, Robinson, Pruzinsky, & DePree, 1983). In this scenario, an example of worry might be fretting about what being passed over for a promotion might suggest about the results of an upcoming performance evaluation. Finally, experiential avoidance can be defined as avoiding contact with uncomfortable internal experiences, including thoughts, feelings, and memories (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

## **2.5 PTSD Models**

### **2.5.1 Foa's Fear Conditioning Theory**

Foa, Steketee, and Rothbaum (1989) proposed a model focusing on fear conditioning as a key mechanism in the development and maintenance of PTSD. They suggested that the

trauma memory could be conceptualized as a fear network that included representations of trauma-related stimuli, responses, and their meanings. This network can include aversive stimuli (e.g., blood) as well as previously neutral stimuli, such as the weather at the time of the trauma. Foa and colleagues argue that chronic PTSD is characterized by an excessive number of stimulus representations being associated with danger, as well as particularly strong emotional and physiological responses to these stimuli. This can result in extreme responses, such as flashbacks, to ostensibly non-threatening stimuli. Treatment is therefore designed to weaken pathological connections in the fear network through introducing new information (for example, pairing distressing, previously neutral stimuli with non-traumatic experiences) and fear habituation (i.e., working towards decreased response to distressing stimuli through repeated exposure to the stimuli).

Emotions – specifically fear – play a central role in this model. First, Foa and colleagues argue that individuals are strongly motivated to change their thoughts and behaviors to avoid experiencing fear, leading to the reinforcement of activities that feel safe. For example, selecting a seat at a restaurant with a clear view of the entrance may be rewarded by experiencing a sense of relief. However, selecting a seat facing away from the door at a restaurant may be associated with the experience of anxiety throughout the meal, even if no threat eventuates. Therefore, the individual is motivated to avoid situations that evoke anxiety or fear, regardless of the likelihood of harm occurring. Further, the intensity of the fear paired with a stimulus in a fear network acts to determine the strength of the association, and therefore influences the extent of behavior change. An individual who experiences extreme fear is more likely to try to avoid activities associated with those feelings. For example, an individual who experienced 90 percent intensity of fear during a car accident is much more likely to avoid driving in the future compared to an individual who experienced 10 percent intensity of fear during an accident.



With respect to specific emotion regulation strategies, an individual predisposed to rumination may be more likely to dwell on the negative consequences of a traumatic event and their current symptoms, such as physical injuries, financial loss, and grief. With this excessive attentional focus on the negative results of exposure to trauma-related stimuli, the individual may further strengthen the associations between stimuli in the fear network and intense negative emotions. That is, an individual preoccupied with the damage caused by a past threat would be more motivated to develop sensitivity to that type of threat in the future. However, an individual who did not dwell on the sequelae of a trauma to the same extent (and therefore did not experience the additional distress evoked by this process) may not have the same degree of motivation to avoid the threat in the future. This is one possible mechanism by which use of specific emotion regulation strategies after experiencing a trauma may contribute to the development of chronic PTSD.

### **2.5.2 Ehlers and Clark's Cognitive Theory**

Ehlers and Clark (2000) outlined a cognitive model proposing that PTSD becomes chronic when individuals process the trauma in such a way that results in the individual perceiving an ongoing sense of current threat. They suggest that the two mechanisms that contribute to this are: a) overly negative appraisals of the trauma and its sequelae, and b) the nature of the individual's memory of the trauma and the trauma memory's integration and contextualization with other autobiographical memories. Negative trauma-related appraisals can be in relation to external factors (e.g., considering other people to be dangerous) and internal factors (e.g., considering oneself to be weak). With respect to autobiographical memory, it is posited that the trauma memory is poorly elaborated and insufficiently connected to its context in terms of time, space, and its relationship with other memories. This, Ehlers and Clark argue, explains why the memory is difficult to intentionally recall (there is a lack of clearly defined retrieval routes), but is often accessed inadvertently and

without context. That is, the trauma memory has not been processed and meaningfully integrated into an individual's long-term memory in the same way as other, less negative memories. As such, being vivid and emotionally salient, but not contextualized, the trauma memory is easily triggered by physically similar cues, in the same way that an item not placed securely on a cupboard shelf may fall out every time one opens the cupboard's door. Ehlers and Clark argue that the sense of current threat generated by these processes motivates behavioral and cognitive responses intended to minimize the threat and accompanying fear (e.g., experiential avoidance), but has the unintended effect of preventing cognitive change and thus maintains PTSD.

Ehlers and Clark's (2000) model argues that the intense, negative emotions experienced in PTSD are caused by overly negative trauma-related appraisals. For example, an individual holding the belief "I made a terrible mistake" would be likely to experience far more intense negative emotions than an individual who held the belief "I made the best decision that I could, considering the information that I had available to me at the time". With respect to specific emotion regulation strategies, Ehlers and Clark highlight the importance of reappraisal in recovery from trauma. That is, the process of challenging maladaptive views and beliefs about a trauma can facilitate the development of more accurate, less negative appraisals, therefore leading to less intense negative emotions. Further, rumination appears likely to contribute to the likelihood of overly negative appraisals regarding the trauma and its consequences. That is, a stronger focus on the negative outcomes of a trauma is likely to generate more negative appraisals about the trauma itself. Further, worry is notable as a process that generates current distress about potential negative future events. An individual inclined to worry about the potential of being harmed again in the future may experience greater difficulties in processing a traumatic memory as an autobiographical memory that is firmly in the past, instead considering it to be of prime importance for informing future

activities so as to prevent the distress from reoccurring. Finally, suppression of thoughts and emotions can prevent PTSD sufferers from learning new information to challenge maladaptive appraisals about either the trauma, or PTSD symptoms (e.g., “I cannot cope with experiencing this much distress.”) This is because meaningful interactions with internal experiences are necessary in order to develop adaptive appraisals about thoughts, feelings, and memories. As such, experiential avoidance, expressive suppression, and thought suppression can function to maintain PTSD.

### **2.5.3 Brewin’s Dual Representation Theory**

Brewin, Gregory, Lipton, and Burgess (2010) constructed a revised version of their dual representation model (Brewin, Dalgleish, & Joseph, 1996). The updated model differentiates between abstract, flexible and contextualized memories (C-reps) and inflexible, sensory-bound memories (S-reps). These two types of representations are considered in relation to the intrusions experienced in PTSD. S-reps are activated by matching inputs that typically consist of low-level sensory features, while C-reps are typically more abstract representations that are accessible through deliberate retrieval. When the trauma memory is stored as a S-rep, without the corresponding C-rep properties, it can be triggered involuntarily by environmental or situational cues which are similar to the original trauma. However, the absence of the C-rep properties means that the appropriate autobiographical memory is not retrieved at the same time and thus, the representation is not grounded to a specific time and place. Therefore, this lack of association between S-rep and C-rep systems results in the experience of intrusive remembering (Brewin et al., 2010).

Although the consolidation and processing of memories is likely to require emotion regulation skills, this theory does not directly address the role of emotion regulation in the development of PTSD. However, treatment of PTSD that is consistent with this model (i.e., exposure therapy) requires the development of strong emotion regulation skills. The

connection between treatment and emotion regulation will be discussed further in the section *Treatment of PTSD*.

#### **2.5.4 Dalgleish's SPAARS Theory**

Dalgleish (2004) described the Schematic, Propositional, Analogue, and Associative Representational System (SPAARS) model in relation to PTSD. This model features three levels and four representational systems. The analogical system stores information and memories in the form of sensory information, which is then directed to three hierarchically organized levels: the propositional level (thought content, beliefs, interpretations), the associative level, and the schematic model level (the highest level of mental representation – overarching organizational constructs). Emotions have a particularly powerful role in this model through the feature of emotion modes, which function to rapidly reconfigure the components of the system to address the circumstances that originally led to the emotion being generated. In the case of PTSD, experiencing fear results in the activation of threat-related information across all four representational domains and the generation of new cognitive pathways to maximize detection of the new threat. In this way, emotions can “hijack” the system to achieve a particular end (Dalgleish, 2004). Thus, for individuals with PTSD, this often involves prioritizing feeling safe at the expense of other functioning.

It is arguably the SPAARS model that most clearly underscores the importance of emotion regulation in the development and maintenance of PTSD. Emotion modes function such that the degree of reorganization is determined by perceived necessity or how important the individual believes it is for the information to be prioritized. That is, a stronger fear or anxiety response will result in more reorganization than a weaker response, as this is assumed to correspond to a smaller degree of threat and therefore lesser need to change. Consequently, an individual capable of effectively down-regulating fear or anxiety responses is less likely to have their representational systems excessively reorganized to maximize threat detection at

the expense of other functioning. For example, this individual may find themselves tenser and more vigilant while driving following a car accident, while an individual less skilled at regulating their emotions may develop a phobia of driving and be unable to get behind the wheel; their network has prioritized identifying driving as a threat over functionally being able to drive.

## **2.6 Summary – Role of Emotion in PTSD Models**

An individual who cannot effectively self-regulate the aversive emotions typically associated with a trauma memory, such as fear, panic, guilt, shame, or anger, is likely to experience many exacerbating factors in the processes of developing and maintaining PTSD. As such, poor emotion regulation in the first days or weeks after the trauma may have a role in differentiating individuals who spontaneously recover after a traumatic experience and those who go on to develop PTSD. Further, preliminary research has identified healthy emotion regulation to be a protective factor against developing PTSD (Bergthold, 2010). Conversely, habitual ineffective emotion regulation appears likely to be a predisposing factor for developing PTSD.

While differing in their conceptualization of the role of emotion in PTSD, all four models concur that gradual, controlled exposure to the trauma memory is central to the treatment of PTSD. Arguably it is in this respect that ineffective emotion regulation most strongly influences the maintenance of PTSD. An individual who struggles to regulate aversive emotions is much less likely to be able to productively engage with their trauma memory, either alone or with the support of a therapist. Poor emotion regulation would make it extremely difficult for an individual to engage in fear habituation, cognitive restructuring, or the contextualizing of memories – as underscored by the SPAARS model (Dalglish, 2004), overwhelming emotions seem to undermine these more complex processes. Instead, as clearly posited by the cognitive model (Ehlers & Clark, 2000), emotion dysregulation

promotes behavioral and cognitive changes that quickly reduce aversive emotions in the short term, resulting in the maintenance of PTSD. Further, it is widely recognized that intense emotion inhibits functioning of the prefrontal cortex, including disrupting the capacity for higher level cognitive functions (such as decision-making) which are required for cognitive therapy (Westbrook, Kennerly, & Kirk, 2016). In short, clients with PTSD need to learn effective emotion regulation skills to meaningfully engage in treatment.

## **2.7 Emotion Regulation and PTSD**

Some researchers, such as Frewen and Lanius (2006), go so far as to conceptualize PTSD as primarily a disorder of emotion and arousal dysregulation. They argue that individuals with PTSD are typically unable to downregulate their psychophysiological arousal and distress, while simultaneously unable to upregulate their arousal during periods of anhedonia or emotional numbing (Frewen & Lanius, 2006). Although few other researchers hold as extreme views as Frewen and Lanius (2006), emotion regulation has consistently been identified as a key factor in the development and maintenance of PTSD (Seligowski, Rogers, & Orcutt, 2016; Weiss, Tull, Anestis, & Gratz, 2013), and PTSD symptoms are consistently associated with emotional dysregulation (Burns, Jackson, & Harding, 2010; Ehring & Quack, 2010; McDermott, Tull, Gratz, Daughters, & Lejuez, 2009). In a meta-analysis of 57 studies, Seligowski and colleagues (2015) examined the associations between PTSD symptoms and several methods of emotion regulation. They reported significant effects for general emotion dysregulation ( $r = 0.53$ ;  $k = 13$ ), rumination ( $r = 0.51$ ;  $k = 5$ ), thought suppression ( $r = .47$ ;  $k = 13$ ), expressive suppression ( $r = 0.29$ ,  $k = 3$ ), and worry ( $r = 0.28$ ,  $k = 6$ ). While these effect sizes, particularly for general emotion dysregulation, rumination, and thought suppression, are considerable, this meta-analysis did not investigate the cultural makeup of the included studies' samples. This reflects the pervasive assumption in the PTSD literature that central emotion regulation mechanisms

operate in universally similar ways across cultural groups. However, there is accumulating cross-cultural evidence that questions this assumption.

In summary, past research has clearly identified an association between ineffective emotion regulation and PTSD, particularly in Western samples. However, there are several gaps in our understanding of this area. Researchers have attempted to account for variations in the relationship between emotion regulation and PTSD by investigating potential moderating variables, such as social support (Zhou, Wu, & Zhen, 2017) and differences in executive functioning (Bomyea & Lang, 2016). However, to date, no studies have considered the possible role of cultural differences in the relationship between emotion regulation strategies and PTSD. Investigating the role of culture in the relationship between emotion regulation and PTSD is essential to extending current findings beyond Western cultural groups, as well as better understanding PTSD in Western individuals.

## **2.8 Culture**

Culture can be defined as the patterns of historically derived ideas that pervasively influence the way in which individuals in a group think, feel, or behave (Kroeber, 1978). Marsella (2005) extended this definition to include learned behaviors and meanings which are socially transmitted. Culture consists of both internal features (i.e., attitudes, values, expectations, beliefs and world views) and external features (i.e., artefacts, roles and institutions). Together, these features endorse what is moral, imperative, and desirable within a group (Hofstede, 2001; Marsella, 2005). Importantly, cultural beliefs within individuals and groups are dynamic and expected to continually change over time (Marsella, 2005). Marsella and Yamada (2007) argued that these shared learned behaviors are passed on from generation to generation for the purpose of promoting survival, adaptation, and adjustment.

Culture must be considered when conceptualizing mental health disorders because culture essentially constructs our reality (Marsella, 2010). That is, culture defines the lens

through which we see the world, thereby providing a template for what we consider to be normal, healthy, and acceptable. Marsella (2010) outlined six steps in the cultural construction of reality:

1. Humans have an instinctual drive to describe, understand, and predict their world by making sense of the stimuli around them.
2. The typical human brain organizes and connects stimuli, and in the process generates patterns of meanings that promote survival, adaptation, and adjustment.
3. The process of organizing information as well as the interpretations of stimuli accumulated through this process are culturally contextualized. That is, they are shaped by the sensory, behavioral, and interpersonal practices that make up cultural socialization.
4. Stimuli are stored as accumulated life experience within the individual, as well as in external forms such as books. This accumulation of information helps to create cultural continuity over time (i.e., past, present, and future) for both the individual and their cultural group, shaping individual and collective identities. For example, a person who recalls overcoming many obstacles may, over time, come to hold a view of being a strong, resilient person. Similarly, a group who recalls facing many challenges as a unit may form an identity of being close knit and supportive.
5. Through socialization, individual and group preferences and priorities are rewarded or punished, thereby modifying the cultural constructions of reality.
6. Given that different cultural contexts provide different realities via the cultural socialization process, reality is therefore culturally constructed.

While an individual's culture must be considered in the recipients of psychological services, it also ought to be noted in both practitioners and researchers. This is particularly critical when considering the problem of ethnocentricity, a phenomenon in which different



groups come to believe that only their construction of reality (that is, their cultural world view) is accurate or true (Marsella, 2010). Given that psychological theories and empirical research uses predominately Western samples, caution is required when generalizing current understandings and therapeutic approaches to other cultural groups.

## **2.9 Models of Culture**

Cultural models conceptualize cultural differences along a range of dimensions on which cultural groups systematically vary. Prominent models include Hofstede's (2001) cultural dimensions theory, Markus and Kitayama's (2010) self-construal theory, Sato's (2001) cultural theory, and Nisbett, Peng, Choi and Norenzayan's (2001) systems of thought theory. For the purpose of this thesis, we have described three key variables which have been identified to vary between Eastern cultures and Western cultures: self-construal, thinking style, and beliefs about emotions.

### **2.9.1 Self-construal: Independence and interdependence**

Markus and Kitayama (1991) focused on the idea of independence versus interdependence with respect to the relationship between the self and others. Cultural ideas and values about the self include what a person should be doing and how a person should relate to others (Markus & Kitayama, 2010). This theory argues that Western (independent) cultures promote asserting and distinguishing oneself from others, whereas Eastern (interdependent) cultures encourage members to fit in with others. The assumption underlying interdependence is that individuals are inherently connected and that the significance of an individual person is realized through their relationships with others (Markus & Kitayama, 2010). In contrast, independence assumes that social relationships are formed on the basis of interests and goals of participating unique, distinct individuals. Markus and Kitayama further assert that independent cultures encourage individuals to attend

to themselves and pursue personal goals, while interdependent cultures encourage the consideration of others when enacting a given behavior.

The concepts of independence and interdependence are featured across several cultural theories, including Hofstede's (2001) cultural dimensions. From Hofstede's perspective, relationships between the individual and their group are closely tied to societal norms. For example, the Chinese word for 'man' (*ren*) includes the person's intimate social and cultural environment, which are considered to make that person's existence meaningful (Hofstede, 2001). That is, the value of the self is derived from relationships with other people; Chinese behavioral norms tend to encourage group harmony. This broad world view is considered to be an example of collectivism. Collectivism does not disregard the individual's wellbeing or interest – rather, it is assumed that maintaining the group's wellbeing is the best guarantee for the individual (Ho, 1979 in Hofstede, 2001). By contrast, individualism supports differentiating oneself from the group as a source of wellbeing and stands for a society in which ties between individuals are loose. Individuals are expected to look after themselves and their immediate family.

Parallels can also be identified with Sato's (2001) concepts of autonomy (a sense of competence, control, achievement, or agency) and relatedness (a sense of community or affiliation with others). Sato conceptualized cultural differences in terms of the degree of autonomy and relatedness that individuals need to thrive. It is proposed that individuals in collectivistic cultures need high levels of relatedness and moderate levels of autonomy to maintain a sense of wellbeing, while those in individualistic cultures need high levels of autonomy and moderate levels of relatedness to promote good mental health. Sato theorized that autonomy and relatedness are associated with a dual system of self-organization which individuals use to construe experiences in such a way that their needs for both autonomy and

relatedness are met. It is this ability to self-regulate that Sato proposes facilitates psychological wellbeing.

A focus on either interdependence or independence shapes how individuals feel about themselves. In a study utilizing a cross-cultural survey, Kitayama, Karasawa, Curhan, Ryff, and Markus (2010) found that Japanese and North American participants associated the satisfaction of different needs with a sense of health and wellbeing. Specifically, Americans with compromised personal control (and therefore constraints in actualizing the cultural mandates of independence) reported lower perceived health and wellbeing. On the contrary, Japanese participants with strained interpersonal relationships (and corresponding constraints in actualizing the cultural mandates of interdependence) reported lower perceived wellbeing. Thus, cultural views are powerful factors in shaping how individuals and groups define success and wellness.

### **2.9.2 Dominant thinking style: Analytic and holistic**

Cultures also vary in the extent to which they endorse holistic or analytic ways of thinking, which is central to Nisbett and colleagues' (2001) systems of thought theory. A holistic (or dialectic) perspective considers experiences as parts of a whole, and contradictions in experiences are viewed as acceptable (Bagozzi, Wong, & Yi, 1999). Eastern cultures demonstrate a dominantly holistic thinking style, which is often attributed to the cultural prominence of Confucianism, the chief moral system of China (Nisbett et al., 2001). Holistic thinking includes three central tenets: contradiction, change, and context (de Vaus et al., 2018). The principle of contradiction is that each experience or belief is associated with its opposite. One study that highlighted this principle asked Chinese and American participants to evaluate the plausibility of two arguments which contradicted each other (Peng & Nisbett, 1999). When provided with just one argument both groups agreed on its plausibility. However, when participants were given both arguments simultaneously,

American participants consistently differentiated between the plausibility of the two arguments. In contrast, Chinese participants' ratings of plausibility converged for the two arguments, suggesting a compromise approach (Peng & Nisbett, 1999). Holistic thinking allows for two seemingly contradictory beliefs to be considered as true to some degree at the same time. Similar findings have been reported with respect to emotions, with Eastern individuals more likely to report experiencing negative emotions during overall positive events (Bagozzi et al., 1999; Sims et al., 2015), illustrating that contrasting ways of feeling can also both hold true at the same time. For example, joy at finishing an educational qualification may co-occur with fear about the future.

The principle of change refers to the world being in a constant state of flux, meaning that change is expected and considered normal (Nisbett et al., 2001). This does not necessarily refer to an unconditionally positive response to change, so much as the acceptance of its inevitability. One study illustrating cultural differences in expectations for change involved priming participants with Eastern symbols (Alter & Kwan, 2009). Although Europeans initially predicted less change than East Asians, when primed with Eastern symbols, European participants predicted a significantly greater likelihood of change (Alter & Kwan, 2009). The assumption of impermanence of a situation may influence how individuals respond to aversive situations, including the experience of negative emotions (de Vaus et al., 2018). That is, individuals who expect that a situation will change may feel less distressed by negative emotions because they assume these emotions will pass.

Finally, the principle of context is that all things are interconnected. Also referred to as the acknowledgement of shared humanity, this principle concludes that many human experiences are universal and likely to be shared by others (Nisbett et al., 2001). Holistic thinkers are therefore more likely to observe an object's context in order to understand its behavior, whereas analytical thinkers are more likely to focus on the object itself. Cultural

differences in the perception of objects in context have frequently been explored in visual processing studies. For example, Goto, Ando, Huang, Yee, and Lewis (2010) found that East Asian Americans processed the relationships between the target object and background scenes more than European Americans. Specifically, East Asians showed a greater response than Caucasians when backgrounds (e.g., underwater scene) were incongruent with the target object (e.g., a cow) (Goto et al., 2010). This is proposed to reflect East Asians giving greater attention to contextual information, including the interaction or relationship between the object and its background, than European Americans. These findings are consistent with the notion that holistic thinkers see the self as flexible and variable due to its connectedness with social context. By contrast, analytic thinkers are more likely to see the self as fixed and unchanging, separate from one's social context. Further, socially, holistic thinkers place greater importance on the impact of one's behaviors on others (Nisbett et al., 2001). de Vaus and colleagues (2018) argue that this may allow for greater self-distancing in holistic thinkers when evaluating the causes of emotions, with holistic thinkers predisposed towards considering their context and the influence of others. Analytic thinkers, on the other hand, may be more likely to consider emotions as an internal event and attribute the causes of emotions to their own behaviors.

Conversely, an analytic perspective involves seeking knowledge by breaking whole concepts down into their smallest parts and categorizing these parts based on their differences (Bagozzi et al., 1999). This thinking style is believed to be derived from the work of ancient Greek philosophers, which often focused on concepts such as personal freedom and the presumption that the world could be understood by the discovery of rules (Nisbett et al., 2001). Analytic thinking is more prevalent than holistic thinking in Western, individualistic countries, including Australia, the UK, and the USA (Nisbett et al., 2001). Importantly, neither thinking style (analytic or holistic) is considered more accurate or effective than the

other. However, these thinking styles are associated with different ways of relating to important components of emotional experience, such as negative emotions.

### **2.9.3 Beliefs about emotions: Acceptance of negative emotions**

Eastern and Western cultures also differ with respect to the conceptualization of positive and negative emotions. Analytic thinking often leads to the assumption that positive and negative emotions are opposite and thus, as positive emotions increase negative emotions must decrease (and vice versa) (Scollon, Diener, Oishi, & Biswas-Diener, 2005). Holistic thinking perceives that positive and negative emotions co-exist and contradictions in emotional experience are acceptable (Grossman, Huynh, & Ellsworth, 2016). Thus, East Asian cultures tend to be more tolerant and accepting of negative emotional states (Bagozzi, et al., 1999; de Vaus et al., 2018), compared to Western cultures (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Kuppens, Realo, & Diener, 2008; Mesquita & Karasawa, 2002). de Vaus and colleagues (2018) propose that this may mean that Eastern individuals are capable of experiencing greater frequency and intensity of negative emotions without meeting criteria for psychopathology – that is, the experience of negative emotions may not impair Eastern individuals' functioning in the same way that it impairs Western individuals' functioning and sense of wellbeing.

### **2.10 Culture and Emotion Regulation**

The ability to regulate emotions is considered critical to an individual's functioning in society (Koole, 2009). Culture has been shown to shape how individuals tend to self-regulate their emotions (Ford & Mauss, 2015). A key element of effective emotion regulation is selecting appropriate regulation strategies for a given context or situation (Cole, Michel, & Teti, 1994; Thompson, 1994). While this has typically been conceptualized within Caucasian samples, considering an individual's culture as a part of the context would suggest that cultural characteristics shape the most adaptive way to regulate emotions in a given situation.

Culture reinforces emotion regulation behaviors that promote the dominant values in that social group (Ford & Mauss, 2015). Such differences have been predicted and explored with respect to three cognitive emotion regulation processes: suppression, rumination, and worry.

### **2.10.1 Suppression and culture**

Research in Western populations has identified suppression as an unhelpful emotion regulation strategy (Ford & Mauss, 2015), linked with poorer psychological wellbeing (Aldao, et al., 2010), avoidant attachment, reduced sharing of emotions, lower social support, lower peer-rated likeability, and reduced relationship closeness (Gross, 2002; Gross & John, 2003; John & Gross, 2004). Further, both thought and expressive suppression are associated with PTSD in Western participants (e.g., Moore, Zoellner, & Mollenholt, 2008; Neufeind, Dritschel, Astell, & Macleod, 2009; Shipherd & Beck, 2005), with moderate to large effect sizes observed (Seligowski et al., 2015). Researchers theorize that suppression of trauma-related thoughts and emotions limits the acquisition of knowledge required to challenge beliefs that these internal experiences are dangerous. This results in persistent fear of these internal experiences (Ehlers & Clark, 2000). However, cross-cultural research has increasingly identified that expressive suppression is not necessarily maladaptive in interdependent contexts, and may even be beneficial (Ford & Mauss, 2015; Hu et al., 2014). For example, Butler, Lee, and Gross (2007) compared the social consequences of emotional suppression between Americans with Western-European values or with Asian values. Western European values tend to encourage open expression of emotion in most situations. However, suppression is more accepted by Asian cultures because it is used pro-socially (for example, suppressing anger with a friend to preserve the relationship) more often than in Western cultures. Participants were asked to have a conversation with a partner after watching a distressing film. They were allocated to two groups which were instructed to either instructed to have a normal conversation (control condition), or to try to suppress their

emotions during the conversation (suppression condition). Butler and colleagues found that participants holding Western values in the suppression condition were less responsive than Western participants in the control condition, leading their partners to consider them as hostile or uninterested. However, participants holding Asian values who were in the suppression group demonstrated no change in responsiveness, and as such their interpersonal interaction was unaffected by suppression. Butler et al. (2007) interpreted this to suggest that the consequences of emotional suppression were culturally specific.

Cross-cultural research has also identified that members of interdependent cultures use expressive suppression more frequently than members of independent cultures, which is frequently attributed to the normalization of pro-social use of this strategy (see Ford & Mauss, 2015 for a review). Consistent with these cultural norms, in interdependent cultures expressive suppression is not necessarily associated with poor mental health (Hu et al., 2014), poor social functioning (Butler, Lee, & Gross, 2007) or increased expressions of distress (Chang, Jetten, Cruwys, & Haslam, 2017) as it is in independent or Western cultures. Thus, expressive suppression may not be as detrimental to posttraumatic adjustment for East Asian trauma survivors.

### **2.10.2 Rumination and culture**

Similar findings have been demonstrated with respect to rumination. Rumination is associated with PTSD in Western participants (e.g., Birrer & Michael, 2011; Ehring, Frank, & Ehlers, 2008; Spinhoven, Penninx, Krempeuiou, van Hemert, & Elzinga, 2015), with a large effect size observed (Seligowski et. al., 2015). This strategy is hypothesized to increase PTSD through exacerbating problematic trauma-related appraisals, thereby increasing distress (Ehlers & Clark, 2000). However, emerging cross-cultural research suggests that those from interdependent cultures tend to report higher levels of rumination than those from independent cultures (Maxwell, Sukhodolsky, Chow, & Wong, 2005), rumination is



associated with less distress for those from interdependent cultures (Grossmann & Kross, 2010), and the negative consequences of rumination are associated with the endorsement of independent values (Jose & Schurer, 2010). Grossmann and Kross (2010) hypothesized that these cultural differences may occur because individuals from interdependent cultures tend to self-distance more than individuals from independent cultures when analyzing their feelings, as would be expected with a holistic thinking style. Self-distancing in turn results in decreased negative affect and increased reconstruing of memories in a way that promotes insight and closure. This hypothesis was supported by their finding that self-distancing mediated cultural differences in the outcomes of rumination (Grossmann & Kross, 2010). Thus, rumination may not be as associated with poor psychological adjustment for East Asian trauma survivors.

### **2.10.3 Worry and culture**

Worry has a moderate positive association with PTSD in Western populations (Seligowski et al.; 2015, see also Freeman et al., 2013; Bennett, Beck, & Clapp, 2009; Pietrzak, Harpaz-Rotem, & Southwick, 2011). While perhaps seeming a counterintuitive method for regulating emotions, Borkovec's avoidance model of worry (Borkovec, Alcaine, & Behar, 2004), suggests that worry is negatively reinforced by short-term reduction of emotional distress and arousal, although it may ultimately maintain the experience of distress in the long-term (Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006). It has been hypothesized that worry functions as a mechanism of maintaining a steady emotional state in PTSD, with individuals believing that being anxious and vigilant to threat is likely to assist future coping should these threats eventuate (Bardeen, Fergus, & Wu, 2013). Worry has also been conceptualized as a means of emotional avoidance, given that worry is a cognitive activity which may allow for escape from unpleasant bodily sensations and emotions (Tull, Hahn, Evans, Salters-Pedneault, & Gratz, 2011). However, theoretical models suggest that

beliefs about worry may differentially influence the use of this strategy (Prados, 2011). Dugas, Gagnon, Ladouceur, and Freeston (1998) and Wells (1995) both focus particularly on the role of positive beliefs about worry (e.g., “worrying makes me more prepared”), suggesting that individuals holding these beliefs may be more likely to strategically use worry in order to manage their distress. East Asian cultures tend to be future-oriented and focus on the avoidance of harm, while Western cultures tend to be present-oriented and focus on the attainment of positive outcomes (Schwartz & Melech, 2000). Cross-culturally, this leads to a potential difference between the use of worry in East Asian cultures and Western cultures. Given that many East Asian cultures strongly endorse being prepared for the future, individuals within this group may be more likely to view worry as a typical and acceptable behavior rather than a symptom of being overwhelmed or stressed. Whilst very few studies have explored cross-cultural differences in worry (e.g., Watari & Brodbeck, 2000), it is plausible that worry may not be as detrimental for East Asian trauma survivors.

#### **2.10.4 Experiential avoidance, reappraisal, and culture**

Two additional emotion regulation strategies implicated in PTSD are experiential avoidance and reappraisal. Experiential avoidance is consistently associated with PTSD in Western populations (e.g. Kumpula, Orcutt, Bardeen, & Varkovitzky, 2011; Palm & Follette, 2011), with a large effect size observed (Seligowski et al., 2015). Like suppression, experiential avoidance is hypothesized to maintain overgeneralized associations between the trauma and internal experiences because the active avoidance prevents the individual from learning new information to challenge these associations (Ehlers & Clark, 2000). In contrast, reappraisal (i.e., reinterpreting the meaning of a stimulus to change its emotional impact; Gross, 1998a) is broadly considered to be an effective emotion regulation strategy (e.g., Boden, Bonn-Miller, Kashdan, Alvarez, & Gross, 2012; Moore et al., 2008). Reappraisal is hypothesized to be an adaptive skill in PTSD because it gives individuals the opportunity to

challenge distressing or inaccurate appraisals about the trauma. At this stage, there is little cross-cultural research regarding the use of either reappraisal or experiential avoidance. Cook and Hayes (2010) found that acceptance-based coping skills (such as reappraisal) were equally helpful for both Asian American and Caucasian American students, although Asian Americans reported less use of acceptance skills. In contrast, Ishizu, Shimoda, and Ohtsuki (2017) found that experiential avoidance contributed to the development of a subsequent stress response in Japanese students, as would be expected in Western participants. Currently there is insufficient cross-cultural theory or evidence to generate hypotheses. However, given the prominence of these two emotion regulation strategies in the PTSD literature, both strategies will be explored in this thesis.

In summary, past research has clearly identified an association between ineffective emotion regulation and PTSD symptoms, particularly in Western samples. However, there are several gaps in our understanding of this area. Namely, studies have not considered the possible role of culture in the relationship between emotion regulation strategies and PTSD.

### **2.11 Treatment of PTSD**

The *Australian Guidelines for the Treatment of Acute Stress Disorder and Posttraumatic Stress Disorder* recommend trauma-focused psychological therapies as first line treatment for PTSD (Phoenix Australia, 2013). The most researched evidence-based treatment for PTSD is exposure therapy (Difede et al., 2014). Exposure therapy involves confronting the memory of traumatic experiences in a safe and controlled environment using both imaginal and in vivo exposures. Clients are supported to remain in the exposure until their anxiety declines, and exposures are repeated until they provoke minimal distress in the client. Exposure is often followed by a therapist-guided discussion of any thoughts and feelings that arose during the exposure, with the goal of allowing the client to modify information associated with the trauma and facilitating emotional processing (Difede et al.,

2014). Treatment also often involves psychoeducation and symptom management strategies, particularly arousal reduction.

While trauma-focused cognitive behavioral therapy (CBT; a combination of psychoeducation, cognitive restructuring, and exposure therapy) is the gold standard for the treatment of PTSD, meta-analysis indicates that up to a third of clients do not respond to treatment (Bradley, Greene, Russ, Dutra, & Westen, 2005). High drop-out rates have led researchers to consider ways to enhance response to CBT by providing clients with preparatory skills so that they are better equipped to manage the demands of therapy, which is typically emotionally demanding (Trusz, Wagner, Russo, Love, & Zatzick, 2011).

With respect to exposure therapy in PTSD, there is clear utility in teaching clients skills to manage aversive feelings as they emerge during sessions, and this requires facilitating the effective use of emotion regulation strategies. As noted above, one RCT found that participants who engaged in the emotion regulation training prior to trauma-focused CBT were significantly more likely to complete treatment than those who received supportive counseling prior to commencing CBT, and reported lower PTSD symptom severity at a 6-month follow up (Bryant et al., 2013). These results support the findings of Cloitre and colleagues (2010) who also found increased completion and symptom reduction in childhood abuse survivors who received emotion regulation training prior to CBT compared to those who received supportive counseling pre-treatment. Thus, there are likely benefits to including emotion regulation training as a component of treatment for PTSD as these skills may encourage the use of acceptance and reappraisal, while discouraging the use of suppression, rumination, worry, and experiential avoidance. These are understandable emotion regulation outcomes for Western populations, and indeed the participants in these studies were predominantly Caucasian – over 80 percent of the participants in Bryant and colleagues’

(2013) study identified as white, with no information provided about the other ethnicities participating.

### **2.12 Integrating the PTSD and Cross-cultural Research**

If healthy individuals of different cultures have been shown to regulate their emotions differently, it would follow that emotion regulation also functions differently in the context of psychopathology. Although emotion regulation has been demonstrated to differ cross-culturally, little research has been done to explore how these differences influence the development or maintenance of PTSD. Expressive suppression, thought suppression, rumination, worry, and experiential avoidance have all been found to be significantly associated with PTSD (Seligowski et al., 2015). However, if certain emotion regulation strategies are adaptive for some cultures but detrimental for others, clinicians may need to tailor treatment of PTSD with respect to clients' cultural values. For example, exposure therapy is currently the treatment of choice for PTSD (Difede et al., 2014). A key component of exposure therapy involves teaching clients to manage intense emotional responses to trauma memories, which as discussed above, may look very different for clients oriented towards Eastern or Western cultures. Encouraging clients to engage in strategies that are not promoted by their cultures may be less effective than working with culturally congruent strategies, and at worst, may have the potential to be harmful. Therefore, the aim of this thesis was to explore the associations between emotion regulation strategies and PTSD with respect to cultural background. The current research focused on East Asian heritage (e.g., China or Korea; Asian Australians) as an example of a comparatively interdependent, holistic context, and European heritage (e.g., northern or western Europe; European Australians) as an example of a relatively independent, analytic context.

## **Chapter 3: Investigating Cultural Differences in the Effects of Expressive Suppression When Processing Traumatic Distressing Material (Paper 1)**

### **3.0 Investigating Cross-cultural Differences in Expressive Suppression in Healthy Individuals**

Suppression is the most researched emotion regulation strategy in the cross-cultural literature, and it has also been investigated in the PTSD literature. Defined as the deliberate restriction of expressed and experienced emotion (Clapp et al., 2015), suppression is strongly positively associated with PTSD in Western populations, with an effect size of  $r = 0.47$ . However, cross-cultural literature has found that suppression is not necessarily maladaptive in interdependent cultural contexts, and may even be beneficial (Ford & Mauss, 2015; Hu et al., 2014). Therefore, Paper 1 aimed to explore the impacts of suppression on physiological responding, intrusive memory development, and subjective distress in Caucasian Australians and East Asian Australians. Given the preliminary and experimental nature of this study, only expressive suppression was investigated, and healthy participants were recruited.

To investigate PTSD-like symptoms in healthy controls, the trauma film paradigm was used. The trauma film paradigm is an experimental tool for investigating peri-traumatic cognitive mechanisms underlying the development of intrusions in healthy participants. That is, it provides an ethical, experimental analogue for the development of PTSD-like symptomatology after exposure to a stimulus, which is typically a short film depicting stressful or traumatic events (Holmes & Bourne, 2008). The stimuli presented in this study was a short film initially developed by Emily Holmes and colleagues at the University of Oxford. The original film is 10:07 minutes in duration, and features footage of four motor vehicle accidents, two surgical procedures, a man drowning, and an electrical accident. It is routinely used in research (see Arnaudova & Hagedaars, 2017 for a review). Jobson and

Dalgleish (2014) modified the film to make it culturally appropriate for East Asian participants. This involved adding scenes of car accidents and other accidents that had clearly occurred in an East Asian cultural context. In a review of the trauma film paradigm, Holmes and Bourne (2008) concluded that intrusions can be induced in the laboratory, and that their frequency can be increased or reduced through experimental manipulation, including instructing participants to use a cognitive coping strategy. When used cross-culturally, the trauma film paradigm has been found to induce intrusions in both East Asian and Caucasian participants (Jobson & Dalgleish, 2014).

Given the sensitive nature of the trauma film paradigm, ethical considerations are paramount. Holmes and Bourne (2008) recommend non-inclusion of participants with mental health difficulties; clear information be provided to participants about the film content prior to their participation; use of precautionary measures to deal with potentially distressed participants; and provision of contact details to participants in the event of any concerns after the study has ended. The present study addressed all of these guidelines in order to protect the wellbeing of participants, and was granted ethical approval by Monash University Human Research Ethics Committee (Appendix 1). Specifically, participants who reported a history of trauma or ongoing mental health concerns was excluded from the study, a clear description of the film content was provided to participants in an explanatory statement (Appendix 2), and the study was supervised by Dr Laura Jobson, a clinical psychologist qualified to provide support in the event of participant distress. Finally, participants were provided with contact details for a 24-hour crisis line in the explanatory statement in the event that they experienced distress during or following their participation. As per ethical standards for psychological research, informed consent was obtained from all individual participants included in this study (Appendix 3).

### 3.1 Declaration for Thesis Chapter Three

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

<b>Nature of Contribution</b>	<b>Extent of Contribution</b>
Formulation of experimental design, data collection, data analysis and writing manuscript.	75%

The following co-authors contributed to the work:

<b>Name</b>	<b>Nature of Contribution</b>
Peter J. Norton	Critical review of manuscript
Laura Jobson	Consultation in formulation of experimental design, discussion of ideas expressed in manuscript, and critical review of manuscript.

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

**Candidate's Signature:**

**Main Supervisor's Signature:**



*Original Article*

**Investigating cultural differences in the effects of expressive suppression when processing traumatic distressing material.**

**Authors:**

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### 3.2 Abstract

**Background and Objectives:** This study investigated cultural differences in the effects of expressive suppression, whilst watching a traumatic film, on subjective psychological distress, psychophysiological responses and intrusive memory development. **Method:** Caucasian Australian or East Asian Australian participants ( $N = 82$ ) were randomly assigned to either a group that received instructions to suppress their emotions whilst watching the traumatic film (suppression group) or a group that received no instructions regarding emotion management (control group). Electrodermal activity (EDA) and heart rate variability (calculated as Root Mean Square of the Successive Differences; RMSSD) were measured pre-, during, and post-film. Participants reported the number of film-related intrusions in the five minutes and seven days post-viewing. **Results:** Whilst the Caucasian groups did not differ significantly on RMSSD, the East Asian suppression group scored significantly higher on RMSSD during the film than the East Asian control group. Second, those in the suppression groups, regardless of cultural background, reported significantly fewer intrusions immediately post-film than those in the control groups. Third, whilst intrusions reduced over the seven-day period, for the Caucasian suppression group intrusions started to increase towards the end of the week. On Days 6 and 7 the Caucasian suppression group reported more intrusions than the Caucasian control group. **Limitations:** East Asian participants completing the paradigm in a Western context potentially limits the generalizability of findings. **Conclusions:** These findings are discussed in the context of current research on cross-cultural differences in emotion regulation and implications for understanding potential cross-cultural differences in posttraumatic stress disorder.

### 3.3 Introduction

Posttraumatic stress disorder (PTSD) is a mental health condition characterized by intrusive re-experiencing, avoidance of trauma-related stimuli, negative alterations in cognition and mood, and changes in arousal and reactivity (American Psychiatric Association, 2013). Emotion regulation, defined as the ways in which individuals modify their own emotional experiences and expressions (Gross, 2014), has been identified as a key factor in the development and maintenance of PTSD (Bardeen, Kumpula, & Orcutt, 2013; Seligowski, Lee, Bardeen, & Orcutt, 2015; Seligowski, Rogers, & Orcutt, 2016). One example of an emotion regulation strategy is expressive suppression. Expressive suppression is the effort to inhibit the outward display of emotion (Seligowski et al., 2015). In a recent meta-analysis, a medium effect was observed for the association between PTSD symptoms and use of expressive suppression (Seligowski et al., 2015). Thus, expressive suppression is generally considered detrimental to posttraumatic psychological adjustment.

There is however a significant gap in this body of literature. Namely, culture has been shown to shape an individual's preference regarding the employment of emotion regulation strategies (Ford & Mauss, 2015). Specifically, individuals are more likely to employ emotion regulation strategies that are encouraged or accepted by their cultural group (Matsumoto, Nakagawa, & Yoo, 2008). The majority of this cross-cultural research has focused on differences in expressive suppression (Ford & Mauss, 2015), and as such, expressive suppression was identified as the most appropriate starting point for the exploration of cross-cultural differences in emotion regulation in PTSD. Suppression has frequently been identified as a strategy that is valued differently by Western and Eastern cultures. In Western independent cultures, individuals tend to define themselves based on unique, distinct personal characteristics and attributes, whilst in East Asian cultures, interdependence of the individual, relatedness, and harmony with others is typically valued (Markus & Kitayama, 2010). As

emotions are strong internal experiences that have potential to both disrupt social harmony and assert individuality, members of Asian interdependent cultures should be motivated to regulate and suppress their emotions more than members of Western independent cultures (Ford & Mauss, 2015). Supporting this notion, expressive suppression is more frequently employed by members of East Asian cultures than members of Western European cultures (Ford & Mauss, 2015).

Moreover, culture shapes the adaptiveness of an emotion regulation strategy. Specifically, culture reinforces the behaviors that promote cultural values, norms and expectations. Behaviors that are aligned with a culture's values are more likely to be practiced, easily implemented, and socially rewarded, which in turn promotes well-being (Ford & Mauss, 2015). Therefore, expressive suppression may be adaptive when it is consistent with its cultural context, and maladaptive when it is inconsistent with cultural expectations (Ford & Mauss, 2015). Expressive suppression is typically conceptualized as maladaptive in Western cultures as it is broadly viewed as being restrictive of personal expression and freedom and has been found to be associated with poorer psychological adjustment (Aldao, Nolen-Hoeksema, & Schweizer, 2010) as well as avoidant attachment, reduced sharing of emotions, lower social support, lower peer-rated likeability, and reduced relationship closeness (Gross, 2002; Gross & John, 2003; John & Gross, 2004). Suppression has also been associated with increased heart rate and electrodermal activity (EDA) and decreased heart rate variability, reflecting increases in sympathetic nervous responding and decreases in parasympathetic nervous responding, respectively (Gross & Levenson, 1993). However, cross-cultural research has increasingly identified that suppression is not necessarily associated with maladaptive psychological and social functioning in East Asian cultures, and indeed may even be beneficial (Butler, Lee, & Gross, 2007; Ford & Mauss, 2015; Hu et al., 2014). This difference reflects the Eastern cultural value of interpersonal

harmony, which is often prioritized above self-expression (Ford & Mauss, 2015; Markus & Kitayama, 2010; Wei, Su, Carrera, Lin, & Yi, 2013). These findings question the universality of expressive suppression as maladaptive (Ford & Mauss, 2015), and thus, it is timely these findings be considered in the instance of posttraumatic psychological adjustment.

In order to investigate cross-cultural differences in expressive suppression, researchers have employed experimental paradigms. In these paradigms, researchers have typically recruited participants from either a Western European background or East Asian background and experimentally manipulated levels of suppression in a controlled situation, such as in relation to watching an upsetting film (e.g., Butler et al., 2007). Similarly, to investigate propositions regarding posttraumatic adjustment, the trauma film paradigm (i.e. healthy participants are shown a short film depicting traumatic events) is routinely used as an experimental analogue of witnessing real trauma and of subsequent symptoms consistent with a PTSD response (e.g., intrusive memories of film content; analogue flashbacks) (Holmes & Bourne, 2008). The trauma film paradigm thus provides an ethical, experimental analogue for the development of PTSD-like symptomatology. In a review of the trauma film paradigm, Holmes and Bourne (2008) concluded that intrusions can be induced in the laboratory, and that their frequency can be increased or reduced through experimental manipulation, including instructing participants to use certain cognitive coping strategies. The trauma film paradigm has been used in cross-cultural research, which has demonstrated the paradigm is able to similarly induce intrusions in both East Asian and Caucasian participants (Jobson & Dalgleish, 2014).

To date, only two studies have employed the trauma film paradigm to investigate the effects of expressive suppression on intrusions and psychological distress. In these studies participants were requested to either suppress their emotion (suppression group), accept their emotion (acceptance group), or provided with no emotion regulation instructions (control

group) whilst watching the distressing film. Researchers typically measured both subjective emotional experience and psychophysiological responses whilst participants were watching the film and in a post-film recovery period. Adopting this approach, Campbell-Sills and colleagues (2006) found that although subjective reports of distress were similar across groups during the film, the acceptance group reported significantly less negative affect during the post-film recovery period. Further, the suppression group showed increased heart rate during the film compared to the acceptance group. Contrary to expectations, no group differences were found in EDA or respiratory sinus arrhythmia. These findings suggest that acceptance was a more effective method of emotion regulation than suppression in this sample (83% Caucasian, 6.7% Asian, 1.7% Hispanic, and 3.3% multi-racial).

In contrast, Dunn, Billotti, Murphy, and Dalgleish (2009) found that the expressive suppression group self-reported significantly less subjective fear relative to the acceptance and control groups. Furthermore, although no group differences were found in EDA or heart rate, the acceptance group demonstrated a significantly less marked increase in EDA from viewing to recovery than both the control and suppression groups. Additionally, whilst there were no significant group differences with respect to involuntary recall of the stimuli in the seven days post-film, the expressive suppression group demonstrated significantly reduced free recall memory of the film when compared to the control and acceptance groups. Dunn et al. (2009) interpreted these findings to indicate that healthy individuals can modulate their subjective experiences of emotion through suppression, but less so their psychophysiological responses. The cultural makeup of their sample was not reported.

These studies report somewhat mixed findings regarding the consequences of expressive suppression on psychological distress, psychophysiological responses, and the development of intrusive memories. However, both studies offer evidence to indicate that expressive suppression may not be an effective method of emotion regulation in likely

predominately Western samples. Furthermore, neither of the studies considered culture as a potential factor in the effects of suppression on distress and intrusive memories. Given that healthy individuals of different cultures have been shown to regulate their emotions differently, it would follow that emotion regulation processes may also function differently in the context of psychopathology. Although use of expressive suppression has been demonstrated to differ cross-culturally, as of yet, no research has been conducted to explore how these differences may influence the development or maintenance of PTSD symptoms.

This study therefore aimed to explore whether cultural differences in expressive suppression has differential implications for psychological distress, physiological responses, and the development of intrusive memories in a healthy population. The current study was focused on expressive suppression, given the significant research that has demonstrated cultural differences in this emotion regulation strategy (Ford & Mauss, 2015) and given this was the first study in the area, an acceptance group was not included. It was hypothesized that the increased use of expressive suppression would result in a) increased distress (as indexed by increased psychological distress, increased sympathetic nervous responding, and decreased parasympathetic nervous responding) and b) increased film-related intrusive memories (reported both immediately post-film and in the seven days post-film) in the Caucasian suppression group relative to the Caucasian control group. In contrast, it was hypothesized that the use of expressive suppression would result in a) decreased distress (as indexed by decreased psychological distress, decreased sympathetic nervous responding, and increased parasympathetic nervous responding) and b) decreased film-related intrusive memories (reported both immediately post-film and in the seven days post-film) in the East Asian suppression group relative to the East Asian control group.

### **3.4 Method**

#### **3.4.1 Participants**

Participants were 86 healthy university students who were recruited through flyers on campus and social media. Participants were sampled from two cultural groups: individuals who identified as East Asian Australians (hereon referred to as ‘East Asian’) with both parents and all four grandparents born in an East Asian country, including China, Japan, South Korea, and Taiwan ( $n = 41$ ), and Caucasian Australians (hereon referred to as ‘Caucasian’) with both parents and all four grandparents being born in Western countries, including Australia, the UK, New Zealand, Canada, and the USA ( $n = 41$ ). Participants were randomly assigned to either the ‘suppression’ group or the ‘control’ group. Exclusion criteria included self-reported current mental health concerns, prior exposure to traumatic events (e.g., motor vehicle accidents, drowning), or presence of a blood-injury-injection phobia that might cause fainting in response to the experimental stimulus. Participants were also excluded if they believed they would not be able to complete the tasks in English. Four participants were excluded based on not meeting these eligibility criteria, resulting in a final sample size of 82. All four participants were excluded due to having experienced a traumatic event in the past.

#### **3.4.2 Materials and Measures**

##### **Screening measures**

The Hopkins Symptom Inventory (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) was used to measure depression symptomatology. Depression is associated with difficulties in emotion regulation (Joormann & Quinn, 2014), and as such participants who reported that one or more depression symptoms had “extremely” bothered or distressed them in the last week were excluded from the study. Participants who reported any suicidal ideation were also excluded. The Trauma History Questionnaire (Green, 1996) was used to



assess participants' previous exposure to potentially traumatic events. These measures were used to check for comparability in depressive symptomatology and previous trauma exposure across the groups.

### **Physiological measures**

EDA was used to measure activation of the sympathetic nervous system (Mauss & Robinson, 2009). EDA is generated by activation of palmar sweat glands, which is triggered by acetylcholine released by the sympathetic nervous system (Venables & Christies, 1980). As such, increased EDA is associated with increased sympathetic nervous activity. Recording devices were placed on the proximal phalanges of the index and ring fingers of each participant's non-dominant hand. Heart rate variability readings (measured as Root Mean Square of the Successive Differences; RMSSD) were used to measure activation of the parasympathetic nervous system (Lewis, Haviland-Jones, & Barrett, 2008; Task Force of the European Society of Cardiology, 1996). Heart rate variability is a measure of the changes in the length of time between adjacent heartbeats. Movement artefact was accounted for using a 5-minute baseline recording period, with the assumption that the degree of participant movement would be consistent across the duration of the task. Collected together, EDA and heart rate variability have been identified as effective, non-invasive measures of the competing influences of the sympathetic and parasympathetic nervous systems when individuals experience stress (Visnovcova, Calkovska, & Tonhajzerova, 2013). These data were used to measure the biological aspects of participants' emotional experiences (Lewis et al., 2008). EDA and heart rate variability were collected using *PowerLab 8/35* and analyzed using *LabChart 7* software. Height and weight of participants was also collected in order to calculate body mass index (BMI). BMI is often used as a covariate in analysis of physiological variables in order to account for variance in cardiovascular responding contributed by physical fitness (Task Force of the European Society of Cardiology, 1996).

### **Psychometric measures**

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988) is a 20-item self-report measure of current subjective affect. It features 20 items describing mood states and is divided into two subscales: positive and negative affect. Participants were instructed to rate the extent to which they identified with each item at the present moment on a 5-point Likert scale (1 = *very slightly or not at all* to 5 = *extremely*). The PANAS is widely used and has good reliability and validity (Mackinnon et al. 1999; Watson et al., 1988). In the current study, internal consistency was  $\alpha = .87$  for the positive scale and  $\alpha = .65$  for the negative scale.

### **Memory measures**

The Intrusion Diary (Holmes & Bourne, 2008; Jobson & Dalgleish, 2014) was used to measure the number of intrusions experienced by participants over the week after viewing the film. This diary was presented to participants in a paper format and contained written instructions which prompted participants to report the number of intrusions experienced on each day of the week. Following Jobson and Dalgleish (2014), participants also completed a 16-item 'yes/no' forced recognition task (e.g. Scene 5: The phone smashes as it hits the ground) and a 14-item cued recall task (e.g. What explodes in the face of the children in Scene 8?) following exposure to the experimental task to assess participant's voluntary memory of the stimulus.

### **3.4.3 Procedure**

Following informed consent, study eligibility was assessed using the Hopkins Symptom Inventory (Derogatis et al., 1974) and the Trauma History Questionnaire (Green, 1996). Eligible participants then completed the PANAS (Watson et al., 1988). Participants were then randomly allocated to either the suppression or control group by the experimenter. The experimenter attached the physiological recording equipment and explained the purpose

of each device. After a 5-minute baseline recording period, participants were told that they would be viewing a short film, and were given one of two possible sets of instructions. Participants assigned to the suppression groups were told: “If you have any emotional responses to the film, I would like you to do your best not to let those feelings show. In other words, I would like you to behave in such a way that if someone was watching you, they would not be able to tell what you were thinking or feeling at all”, replicating instructions used by Gross (1998). Participants in the control groups received no emotion regulation instructions. Both groups were advised to say “stop” if they felt distressed and wanted to discontinue their involvement in the study.

A trauma film based on Holmes, James, Coode-Bate, and Deerprouse (2009) and extended by Jobson and Dalgleish (2014) was used. The film consisted of ten extracts of footage of traumatic content. Four scenes depicted car accidents, two scenes depicted surgery, and the remaining scenes depicted drowning, genocide, an electricity pylon accident, and a firework explosion. The film was displayed on a 14-inch color monitor in a dark room and viewing distance was approximately 50 cm.

Immediately following the film, the PANAS was re-administered and all participants were asked to indicate on a visual analogue scale (ranged from 1= *not at all* to 5 = *completely*) how hard they had tried to suppress their emotions during the film. This served as a self-report measure of suppression effort and was based on a similar measure used by Campbell-Sills and colleagues (2006). The experimenter then explained to participants the definition of an intrusion of film content and checked participants’ understanding prior to completing the intrusion task. Participants used tally marks to report the number of film-related intrusions experienced during a 5-minute recording period. The experimenter then removed the physiological equipment, and participants completed the recognition and recall task. Finally, the experimenter explained the intrusions diary to participants, and organized

another meeting the following week. At the second meeting, participants returned the intrusions diary. Participants were reimbursed \$20 for their involvement.

#### **3.4.4 Data Analysis Plan**

To assess subjective psychological distress, two 2(culture; East Asian, Caucasian) x 2(group; suppression, control) x 2(time; baseline, post-film) mixed model analysis of variances (ANOVAs) were used to explore changes in PANAS-Negative and PANAS-Positive. To assess psychophysiological responses, two 2(culture; East Asian, Caucasian) x 2(group; suppression, control) x 2(time; during, post-film) mixed model analysis of covariance (ANCOVAs), with baseline scores as covariates, were used to explore EDA and RMSSD. When BMI scores were included as covariates, a similar pattern of results to that reported below was found. To assess intrusions, we first conducted a 2(culture; East Asian, Caucasian) x 2(group; suppression, control) ANOVA with number of intrusions retrieved within the 5-minute window immediately post-film as the dependent variable. Second, we conducted a 2(culture; East Asian, Caucasian) x 2(group; suppression, control) ANOVA with the total number of intrusions retrieved within the week post-film as the dependent variable. Finally, following the approach of Kleim and colleagues (2016) we also examined daily intrusions reported over a week. We conducted a 2(culture; East Asian, Caucasian) x 2(group; suppression, control) x 7(day; 1, 2, 3, 4, 5, 6, 7) mixed ANOVA with daily number of intrusions as the dependent variable.

### **3.5 Results**

#### **3.5.1 Group Characteristics**

Table 1 presents group characteristics. These characteristics were examined using a series of 2(culture; East Asian, Caucasian) x 2(group; suppression, control) ANOVAs. No between-group differences were found for age, gender, BMI, or depressive symptomatology ( $F_s < 1$ ,  $p_s > .05$ ). Unsurprisingly, individuals who identified as Caucasian Australian reported

having lived in Australia for a significantly longer period of time than those who identified as East Asian Australian,  $F(1,78)=162.46$ ,  $p<.001$ ,  $\eta_p^2=.68$ . The group main effect and interaction were both non-significant for time in Australia ( $F_s<1$ ,  $p_s<.05$ ). As expected, the suppression group reported using greater suppression than the control group,  $F(1,78)=26.43$ ,  $p<.001$ ,  $\eta_p^2=.25$ . The culture main effect and interaction were both non-significant ( $F_s<1$ ,  $p_s<.05$ ).

Two 2(culture; East Asian, Caucasian) x 2(group; suppression, control) ANOVAs found significant cultural main effects for both recognition,  $F(1,78)=6.89$ ,  $p=.01$ ,  $\eta_p^2=.08$ , and free recall,  $F(1,78)=19.34$ ,  $p<.001$ ,  $\eta_p^2=.20$ , with East Asian participants scoring significantly lower on both measures than Caucasians. The group main effect and interaction were both non-significant,  $F_s<1$ ,  $ns$ ,  $\eta_p^2<.005$ . When recognition and free recall scores were included as covariates in the below hypothesis-related analyses, a similar pattern to that reported emerged, suggesting group differences in these variables did not account for the findings presented below.

### 3.5.2 Subjective Psychological Distress

For PANAS-negative, as expected, there was a significant time main effect,  $F(1,77)=50.71$ ,  $p<.001$ ,  $\eta_p^2=.40$ , whereby, negative mood was found to be significantly greater post-film when compared to pre-film mood ratings, indicating that the film was effective in increasing negative affect in participants. The cultural main effect was also found to be significant,  $F(1,77)=6.10$ ,  $p<.02$ ,  $\eta_p^2=.07$ , with the East Asian group scoring significantly higher than the Caucasian group. However, contrary to our hypotheses, the suppression main effect,  $F=.04$ ,  $p=.84$ ,  $\eta_p^2=.001$ , and culture x suppression interaction,  $F(1,77)=3.4$ ,  $p=.07$ ,  $\eta_p^2=.043$ , were both non-significant. These findings may be in part due to the poor internal consistency of the PANAS-negative scale in this study. Contrary to hypotheses, a small to medium effect size was found for a non-significant interaction between

culture and experimental group ( $F=.21, p=.65, \eta_p^2=.003$ ). That is, the Asian suppression group reported higher negative affect relative to the Caucasian suppression group. For PANAS-positive, as expected, there was a significant time main effect,  $F(1,78)=91.44, p<.001, \eta_p^2=.54$ , whereby, positive affect was found to be significantly lower post-film when compared to pre-film mood ratings. The cultural main effect was also found to be significant,  $F(1,78)=5.11, p<.03, \eta_p^2=.06$ ; with the Caucasian group scoring significantly higher than the East Asian group. No other main effects or interactions were significant. Specifically, the group main effect was  $F(1,78)=1.60, p=.21, \eta_p^2=.02$ . The group x culture interaction effect was  $F=1.33, p=.25, \eta_p^2=.02$ . Given these differences, when we also included PANAS scores as covariates in the below hypothesis-related analyses, a similar pattern to that reported emerged.

### 3.5.3 Psychophysiology

Psychophysiological responses are presented in Table 1. For EDA, contrary to our hypotheses, only the time main effect was significant,  $F(1,75)=75.66, p<.001, \eta_p^2=.50$ , whereby, EDA was significantly higher post-film than during film. The group,  $F(1,75)=.52, p=.47, \eta_p^2=.001$ , and culture main effects,  $F(1,75)=2.06, p=.16, \eta_p^2=.03$ , and group x culture,  $F(1,75)=1.03, p=.31, \eta_p^2=.01$ , time x culture,  $F(1,75)=1.07, p=.31, \eta_p^2=.01$ , time x group,  $F<1, .31, \eta_p^2=.007$ , and three-way interactions,  $F=.11, p=.75, \eta_p^2=.001$ , were all non-significant.

For RMSSD, the time x culture x group interaction was significant,  $F(1,73)=5.29, p=.02, \eta_p^2=.07$ . Follow-up analyses found that the culture x group interaction was non-significant for post-film RMSSD,  $F=.23, p=.64, \eta_p^2=.003$ , but was significant for during film RMSSD,  $F(1,73)=5.18, p=.03, \eta_p^2=.07$ . Whilst the Caucasian suppression group did not differ significantly from the Caucasian control group on RMSSD during the film,  $F=.01, p=.94, \eta_p^2=.02$ , as predicted, the East Asian suppression group scored significantly higher on

RMSSD (i.e., indicating increased parasympathetic nervous responding) during the film than the East Asian control group,  $F(1,35)=4.85, p=.03, \eta_p^2=.12$ . Additionally, whilst the Caucasian and East Asian control groups did not differ significantly,  $F<1, p=.17, \eta_p^2=.02$ , the East Asian suppression group scored significantly higher than the Caucasian suppression group,  $F(1,78)=9.52, p<.01, \eta_p^2=.21$ .

### **3.5.4 Intrusions**

#### **Immediate intrusions**

The mean number of intrusions recalled immediately post-film and in the week post-film are presented in Table 1. For the number of intrusions retrieved immediately post-film, the group main effect was significant,  $F(1,36)=4.04, p=.05, \eta_p^2=.05$ , whereby, those in the suppression group reported significantly fewer intrusions than those in the control group. The culture main effect ( $F=.02, p=.89, \eta_p^2<.001$ ) and interaction ( $F=.01, p=.94, \eta_p^2<.001$ ) were both non-significant.

#### **Intrusions across the week**

For the total number of intrusions retrieved in the week post-film, the group main effect,  $F=.02, p=.90, \eta_p^2=.001$ , culture main effect,  $F(1,77)=3.29, p=.14, \eta_p^2=0.04$ , and interaction were all non-significant,  $F<.01, p=.97, \eta_p^2=.002$ .

Investigated post-hoc, the mixed ANOVA with daily number of intrusions as the dependent variable revealed that the time x group x culture interaction was significant,  $F(6, 462) = 2.96, p < .01, \eta_p^2 = 0.04$  (Figure 1). Follow-up analyses revealed that the group main effects were non-significant for all seven days. The culture main effect was significant only for Day 1,  $F(1, 77) = 4.10, p < .05, \eta_p^2 = 0.05$ , and Day 2,  $F(1, 77) = 4.20, p < .05, \eta_p^2 = 0.05$ ; whereby, Caucasians reported significantly more intrusions than East Asians. On Day 6, a significant group x culture interaction effect was found,  $F(1, 77) = 9.32, p < .01, \eta_p^2 = .11$ , and on Day 7 the interaction was near-significant,  $F(1,77) = 3.41, p = .069, \eta_p^2 = .04$ . For

each of the groups, as we found no significant difference between the number of intrusions reported for Days 6 and 7, we combined the data for these two days. We found that the Caucasian suppression group reported significantly more intrusions than the Caucasian control group,  $F(1, 39) = 4.64, p = .03, \eta_p^2 = 0.11$ . In contrast, the East Asian groups did not differ significantly,  $F(1, 38) = 1.89, p = .18, \eta_p^2 = 0.05$ . Furthermore, the Caucasian suppression group reported significantly more intrusions than the East Asian suppression group,  $F(1, 39) = 4.43, p = .02, \eta_p^2 = 0.10$ , whilst the control groups did not differ significantly,  $F(1, 38) = 2.22, p = .14, \eta_p^2 = 0.06$ . Given that these were post-hoc analyses with a limited sample size, these findings must be in

### 3.6 Discussion

This study investigated cultural differences in the effects of expressive suppression, whilst watching a traumatic film, on subjective psychological distress, psychophysiological responses and intrusive memory development. First, there was no evidence to support our hypothesis regarding subjective psychological distress. While, as expected, subjective negative affect increased and subjective positive affect reduced after watching the trauma film, there was no evidence to indicate that culture, suppression, or their interaction influenced these findings. Contrary to hypotheses, findings in negative affect suggested that suppression was less adaptive for East Asians with respect to subject affect. Second, there was some support for our hypothesis concerning parasympathetic nervous responding. The East Asian suppression group had significantly increased parasympathetic responding relative to the East Asian control group, but no such difference was observed between the Caucasian groups. Contrary to expectations, no cultural or group differences were found with respect to sympathetic nervous response. Third, contrary to that hypothesized, the suppression group, regardless of cultural background, reported fewer intrusive memories in the 5-minute window immediately after viewing the film compared to the control group. Finally, whilst intrusions



reduced over the seven-day period, we found some evidence to indicate that for the Caucasian Australian suppression group started to increase in intrusions towards the end of the week. Additionally, the Caucasian suppression group reported more intrusions than the Caucasian control group on Days 6 and 7. Thus, for the Caucasian suppression group there seemed to be a delayed increase in intrusions over the seven days of monitoring. Whilst the East Asian control group showed a slight increase at Day 6, this increase was not maintained at Day 7. Given the brief nature of this increase as well as the small scale of increase relative to the rate of decrease of intrusions in the days prior, this temporary increase in intrusions at Day 6 for the East Asian control group is likely best explained as a statistical artifact.

In terms of subjective responding, our cultural findings of East Asians reporting greater negative affect and less positive affect than Caucasians align with previous cross-cultural research. Research has demonstrated that given the influence of dialectical philosophies in Asian cultures (Bagozzi, Wong, & Yi, 1999; De Vaus, Hornsey, Kuppens, & Bastian., 2017), members of Asian cultures tend to be accepting of negative emotions (Bagozzi, et al., 1999; De Vaus et al., 2017), whilst members of Western cultures tend to prioritize positive emotions when compared to those from East Asian cultures (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Kuppens, Realo, & Diener, 2008; Mesquita & Karasawa, 2002). Suppression was not found to influence subjective affect in either cultural group. Campbell-Sills and colleagues (2006) also found that subjective reports of distress were similar across the control and suppression groups during the film and during the post-film recovery period. However, our findings are in contrast to Dunn et al. (2009) who found that the suppression group self-reported significantly less subjective fear relative to the control group. Given Dunn and colleagues' (2009) findings we did also explore individual items on the PANAS negative affect sub-scale. However, in each instance there was no evidence to suggest group or group x culture interactions. It is unclear why the effect

observed by Dunn et al. (2009) was not replicated in the present study, although it is possible that there may be an interaction between expressive suppression and thought or emotional suppression. Given that previous research and the present study have not explicitly forbidden or encouraged other forms of suppression, automatic participant use of these two related strategies (thought suppression and emotional suppression) may further confound these findings. Further, it is unclear why the heightened increase in negative affect observed in East Asian participants when compared to Caucasian participants (as indicated by a significant interaction effect) appeared to have no implications for the development of intrusive memories. Given the sample size of this study, it is possible that analyses did not have sufficient power to clearly distinguish cultural influences. Alternatively, it is possible that negative affect is not as closely associated with intrusive memory development in East Asians as it is in Caucasians.

Regarding psychophysiological responses, increased parasympathetic responding has typically been interpreted to suggest that participants are using a more effective emotion regulation strategy (Campbell-Sills et al., 2006; Dunn et al., 2009). That is, increased activity in the parasympathetic nervous system is associated with participants' bodies working to return their physiological activity from initiation of the fight or flight response to the typical rest-and-digest processes, reflecting a decreased sense of threat (Visnovcova et al., 2013). Increased parasympathetic response makes sense in the context of suppression being more culturally accepted in East Asian countries, and therefore more familiar to East Asian Australian participants. However, it is unclear why no differences were observed in EDA, a widely accepted measure of sympathetic response. Campbell-Sills et al. (2006) and Dunn et al. (2009) also found that, contrary to expectations, no groups differed in EDA.

In terms of intrusion development, instructions to suppress were associated with fewer intrusions across both cultural groups in the five-minute window following the film. Thus, in

the short-term suppression may be a beneficial emotion regulation strategy. However, there was some suggestion that there was a resurgence in intrusions for Caucasian participants who were instructed to suppress – that is, the Caucasian Australian participants appeared to experience a rebound effect toward the end of the week. These findings may be understood in the context of Wegner’s Ironic Process Theory (IPT; Wegner, Erber, & Zanakos, 1993; Wegner & Zanakos, 1994). IPT suggests that deliberate attempts to suppress thoughts can result in these thoughts being more likely to surface, accompanied by corresponding emotions. However, Wegner (1989) notes that suppression may seem effective at first, but that the rebound effect occurs when the effort of suppressing the content becomes too great. It is possible that participants in both cultural groups were able to exert sufficient effort to successfully suppress thought content related to the film within the five-minute period immediately after viewing it. Over the course of the seven-day intrusion monitoring, however, it is possible that the Caucasian suppression participants found that their attempts at suppression became too effortful to continue over a prolonged period of time, and thus intrusive memories re-emerged over the course of the seven days. Meanwhile, the East Asian suppression participants were familiar with use of suppression and less fatigued by using a well-practiced skill, and thus experienced no rebound effect. Importantly, the rebound effect observed was a post-hoc finding, and as such ought to be interpreted with caution.

The shortcomings of this study are acknowledged. First, this study was conducted in Australia, a predominately Western cultural environment. This may result in East Asian participants being more likely to have Western cultural characteristics than those living in their countries of birth, given potential acculturation. Second, it is recognized that samples recruited largely from a university campus may result in a sample with above average education levels and socioeconomic status relative to participants’ countries of birth. This is particularly relevant with respect to countries such as China, where significant proportions of

the population live in rural areas. Third, as with all cross-cultural research, language and task understanding must be considered. The trauma film, while developed to be culturally appropriate for Asian participants, is presented predominately in English, and retrieving memories in a non-native language may impact memory retrieval. Finally, the small sample size means that statistical analyses conducted have somewhat limited power. The nature of the sample size and resulting power of analysis mean that these findings ought to be considered provisional, requiring further exploration with larger samples for more robust generalizations to be made. Despite these limitations, this study provides an important first step in exploring cross-cultural differences in the development of intrusive memories. Caucasian participants were found to eventually experience negative consequences of suppression which were not replicated in East Asian participants. However, suppression was beneficial across both cultural groups in the short term. These findings suggest that further research is warranted to understand these differences in a clinical population and consider the implications for treatment of PTSD in trauma survivors from East Asian backgrounds.

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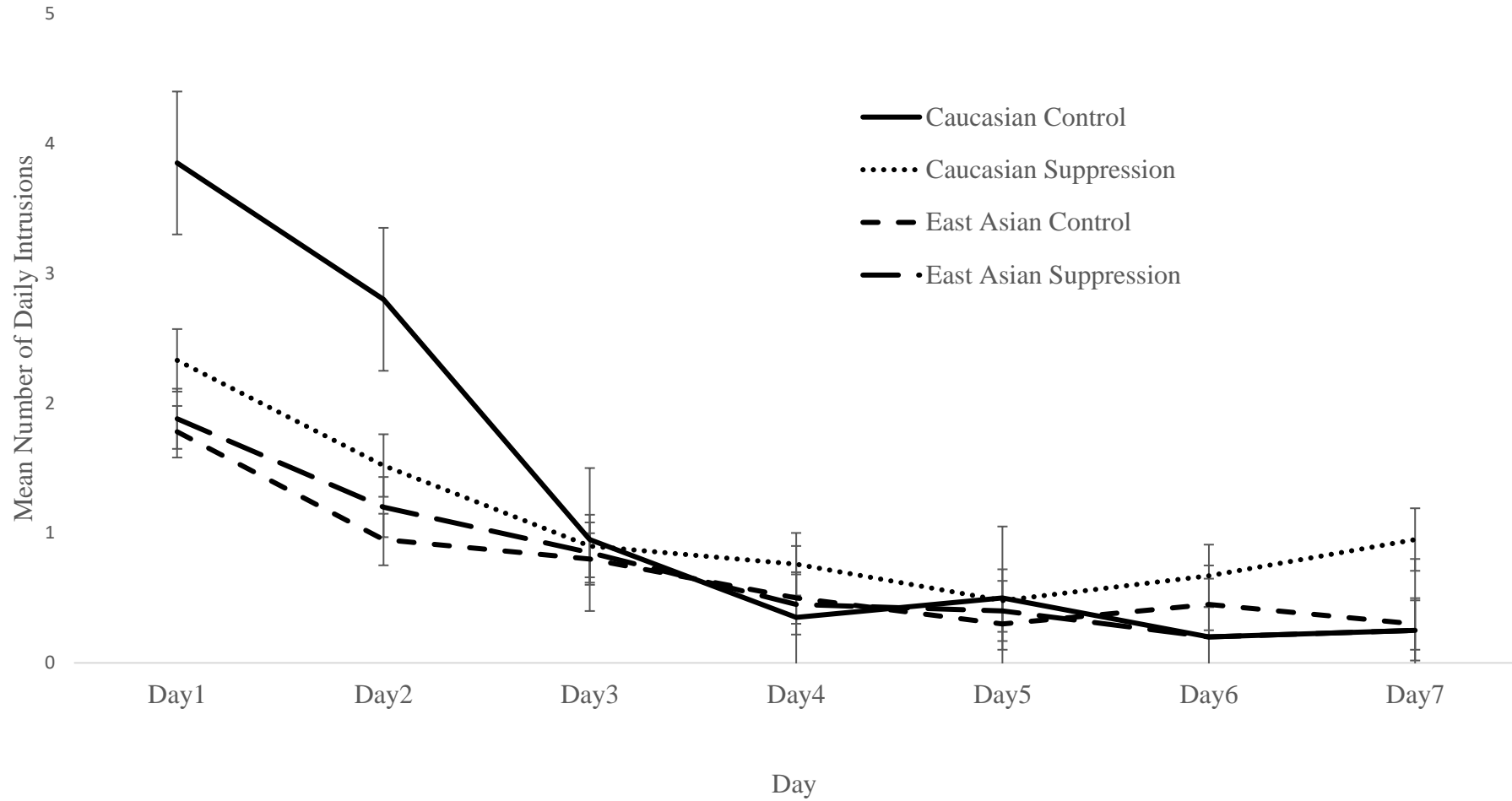
**Table 1***Group Characteristics for Demographic Variables and Study Variables*

	Caucasian Australians Control ( <i>n</i> = 20 )	Caucasian Australians Suppression ( <i>n</i> = 21 )	East Asian Australians Control ( <i>n</i> = 21)	East Asian Australians Suppression ( <i>n</i> = 20)
Age	22.60 (6.06)	21.76 (5.15)	23.05 (4.82)	22.05 (2.86)
Gender F:M	10:10	15:6	11:10	16:4
Years in Australia	20.65 (8.35)	20.57 (5.68)	3.18 (4.85)	3.62 (4.99)
Body Mass Index	21.71 (3.07)	22.35 (4.31)	20.96 (1.96)	21.33 (3.66)
Self-Rated Suppression	2.45 (.94)	3.86 (1.01)	2.81 (1.03)	3.55 (.76)
Depression	1.24 (0.17)	1.33 (0.27)	1.27 (0.22)	1.30 (0.22)
Recognition	11.40 (1.85)	11.38 (1.43)	10.10 (2.07)	10.60 (1.79)
Free Recall	10.65 (1.18)	10.43 (1.43)	9.14 (1.49)	9.10 (1.68)
<b>Subjective Emotion</b>				
PANAS-P Pre-Film	30.60 (7.74)	30.05 (5.48)	27.57 (6.46)	25.30 (8.14)
PANAS-P Post-Film	23.40 (8.03)	23.62 (7.29)	23.19 (7.74)	18.40 (6.73)
PANAS-N Pre-Film	12.30 (2.52)	11.29 (1.27)	12.15 (2.41)	13.35 (3.57)
PANAS-N Post-Film	15.45 (3.76)	14.05 (4.12)	16.50 (4.54)	18.30 (7.43)
<b>Psychophysiological Responses</b>				
EDA Pre-Film	3.80 (3.72)	2.40 (3.10)	2.06 (3.14)	1.95 (2.59)
EDA During-Film	9.10 (6.95)	6.07 (7.56)	4.62 (5.76)	5.20 (3.25)
EDA Post-Film	12.27 (7.70)	8.91 (7.54)	7.34 (5.56)	7.71 (2.47)
RMSSD Pre-Film	45.54 (26.06)	49.03 (24.61)	39.72 (20.73)	50.05 (31.06)
RMSSD During-Film	46.48 (20.30)	44.72 (20.40)	40.71 (12.77)	57.48 (28.44)
RMSSD Post-Film	45.62 (17.93)	53.25 (27.34)	45.17 (24.38)	52.95 (27.83)
<b>Intrusions</b>				
Intrusions 5 mins	6.15 (5.31)	3.76 (2.41)	5.90 (7.16)	3.70 (4.65)
Intrusions week	7.36 (7.97)	7.62 (7.97)	5.08 (6.47)	5.23 (5.03)

*Note:* PANAS-P = Positive and Negative Affect Scale- Positive; PANAS-N= Positive and Negative Affect Scale- Negative; EDA = Electrodermal Activity; RMSSD = Root Mean Square of the Successive Differences

**Figure 1**

Mean ( $\pm$ SE) for total number of intrusions recorded for each group for each of the seven days following watching the trauma film.



## **Chapter 4: Exploring Cultural Differences in the use of Emotion Regulation Strategies in Posttraumatic Stress Disorder (Paper 2)**

### **4.0 Investigating Cultural Differences in Emotion Regulation in Trauma Survivors**

The primary goal of Paper 2 was to investigate relationships between emotion regulation strategies and PTSD in Caucasian Australian and East Asian Australian trauma survivors. The correlational design and clinical sample used in Paper 2 were selected to extend the findings of the laboratory-based Paper 1, thereby, increasing the clinical utility, ecological validity and generalizability of this research.

To protect the wellbeing of participants, all data collection was conducted under the supervision of a registered clinical psychologist (Dr Laura Jobson). Ethical approval was granted by Monash University Human Research Ethics Committee (Appendix 4). Participants were provided with an explanatory statement (Appendix 5) and provided with the opportunity to ask any questions they had about the research. Informed consent was obtained using a consent form (Appendix 6) and participants were advised that they were free to withdraw from the study and cease their participation at any point in time. Participants were also provided with emergency contacts in the event that they experienced distress following their involvement with the study.

#### 4.1 Declaration for Thesis Chapter Four

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

<b>Nature of Contribution</b>	<b>Extent of Contribution</b>
Formulation of experimental design, data collection, data analysis and writing manuscript.	75%

The following co-author contributed to the work:

<b>Name</b>	<b>Nature of Contribution</b>
Laura Jobson	Consultation in formulation of experimental design, discussion of ideas expressed in manuscript and critical review of manuscript.

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

**Candidate's Signature:**

**Main Supervisor's Signature:**

*Original Article*

**Exploring cultural differences in the use of emotion regulation strategies in posttraumatic stress disorder**

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## 4.2 Abstract

Emotion regulation difficulties are central to the development, maintenance, and treatment of posttraumatic stress disorder (PTSD). Cross-cultural research indicates cultural differences in the ways in which individuals regulate their emotions. Despite this, researchers have not examined cultural differences in emotion regulation in PTSD. This study, therefore, explored similarities and differences in emotion regulation in individuals from Western and East Asian cultures with and without PTSD. A battery of emotion regulation strategies was administered to Caucasian Australian ( $n = 31$ ) and East Asian Australian ( $n = 38$ ) trauma survivors with and without PTSD. As expected, Caucasian Australians with PTSD scored significantly higher on measures of worry, expressive suppression, thought suppression, rumination, experiential avoidance, and general emotion dysregulation compared to Caucasian Australians without PTSD. Similarly, East Asian Australians with PTSD scored significantly higher on measures of rumination and experiential avoidance than East Asian Australians without PTSD. However, worry, expressive suppression, thought suppression and general emotion dysregulation did not differentiate between East Asian Australians with and without PTSD. These findings suggest that there may be cultural differences in emotion regulation difficulties in PTSD and highlight the need for further research in this area to ensure culturally appropriate assessment and treatment approaches.

**Keywords:** Posttraumatic stress disorder, culture, expressive suppression, emotion regulation, worry, rumination, thought suppression

### 4.3 Introduction

Emotion regulation – the ways in which individuals modify their own emotional experiences and expressions (Gross, 2014) – is central to posttraumatic stress disorder (PTSD) (Bardeen, Kumpula, & Orcutt, 2013; Seligowski, Lee, Bardeen, & Orcutt, 2015). Key emotion regulation strategies implicated in PTSD include suppression, rumination, worry, experiential avoidance, and reappraisal (Seligowski et al., 2015). Improving emotion regulation is a frequent focus of evidence-based treatments for PTSD (Difede, Olden, & Cukor, 2014). This treatment focus is warranted given the strong evidence supporting the role of emotion regulation problems in PTSD, with a recent meta-analysis finding moderate to large associations between emotion regulation difficulties and PTSD (Seligowski et al., 2015). However, there is a significant limitation associated with this work. Specifically, the 57 studies included in this meta-analysis reported predominately Caucasian samples (Seligowski et al., 2015), highlighting the paucity of cross-cultural research in this domain. Moreover, whilst there is a pervasive assumption in the PTSD literature that central emotion regulation mechanisms operate in universally similar ways across cultures, there is accumulating cross-cultural evidence that questions this assumption.

Culture shapes individual preferences for the strategies used to self-regulate emotions and the associated psychological outcomes (Ford & Mauss, 2015). Individuals are more likely to use emotion regulation strategies that are accepted by their cultural group (Matsumoto, Nakagawa, & Yoo, 2008). Researchers have identified that East Asian and Western European groups hold comparatively different cultural values across several domains that influence emotion regulation. One framework often used to account for cultural differences in emotion is the extent to which independent versus interdependent self-orientation is promoted. Individualistic/independent cultures perceive the self as a unique independent entity that reflects individual attributes (including emotions), values and goals

(Markus & Kitayama, 2010). In contrast, collectivistic/interdependent cultures define the self in relation to others and value adhering to group norms and expectations (Markus & Kitayama, 2010). A second framework is the extent to which cultures endorse holistic or analytic ways of thinking. A holistic (or dialectic) perspective considers experiences as parts of a whole and contradiction in experiences as acceptable, whilst an analytic perspective involves seeking knowledge by breaking whole concepts down into their smallest parts and categorizing these parts based on their differences (Bagozzi, Wong, & Yi, 1999). Although no culture fully endorses a specific set of values and there is individual variation within cultures, East Asian cultures have been identified as relatively interdependent and holistic, while Western cultures have been identified as independent and analytic (De Vaus, Hornsey, Kuppens, & Bastian, 2017). These ways of thinking facilitate a third dimension on which Eastern and Western cultures differ: the conceptualization of positive and negative emotions. Analytic thinking often leads to the assumption that positive and negative emotions are opposite and thus, as positive emotions increase negative emotions must decrease (and vice versa) (Scollon, Diener, Oishi, & Biswas-Diener, 2005). Holistic thinking perceives that positive and negative emotions co-exist and contradictions in emotion are acceptable (Grossman, Huynh, & Ellsworth, 2016). Thus, East Asian cultures tend to be more tolerant and accepting of negative emotional states compared to Western cultures (Bagozzi, et al., 1999; De Vaus et al., 2017; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Kuppens, Realo, & Diener, 2008; Mesquita & Karasawa, 2002). Collectively, these cross-cultural differences lead to cultural variability in which emotion regulation strategies are considered adaptive or maladaptive (see de Vaus et al., 2017; Ford & Maus, 2015).

Research in Western populations has identified suppression as an unhelpful emotion regulation strategy (Ford & Mauss, 2015). Specifically, expressive suppression (i.e., inhibiting the outward expression of an emotion; Gross, 1998) and thought suppression (i.e.,



suppressing a specific thought and the emotions associated with it; Wegner, 1989) are associated with PTSD in Western participants (Moore, Zoellner, & Mollenholt, 2008; Neufeind, Dritschel, Astell, & Macleod, 2009; Shipherd & Beck, 2005), with moderate to large effect sizes observed (Seligowski et al., 2015). However, cross-cultural research has identified that members of interdependent cultures use expressive suppression more frequently than members of independent cultures (Ford & Mauss, 2015). Ford and Mauss (2015) argue that these differences reflect interdependent cultures endorsing strong values of interpersonal harmony, such that members of these cultures use expressive suppression pro-socially. Thus, expressive suppression is acceptable and a cultural norm. In contrast, independent cultures perceive expressive suppression as compromising self-expression and authenticity. Due to these cultural norms, in interdependent cultures expressive suppression is not necessarily associated with poor mental health (Hu et al., 2014), poor social functioning (Butler, Lee, & Gross, 2007) or increased expressions of distress (Chang, Jetten, Cruwys, & Haslam, 2017). Thus, expressive suppression may not be as detrimental to posttraumatic adjustment for East Asian trauma survivors.

Rumination is also associated with PTSD in Western participants (e.g., Birrer & Michael, 2011; Ehring, Frank, & Ehlers, 2008; Spinhoven, Penninx, Krempeuiou, van Hemert, & Elzinga, 2015), with a large effect size observed (Seligowski et al., 2015). Rumination, defined as dwelling on one's symptoms of distress and their consequences (McLaughlin & Nolen-Hoeksema, 2011), is hypothesized to exacerbate problematic trauma-related appraisals, thereby increasing posttraumatic distress (Ehlers & Clark, 2000). Emerging cross-cultural research suggests that those from interdependent cultures report higher levels of rumination than those from independent cultures (Maxwell, Sukhodolsky, Chow, & Wong, 2005), rumination is associated with less distress for those from interdependent cultures (Grossmann & Kross, 2010), and the negative consequences of

rumination are associated with the endorsement of independent values (Jose & Schurer, 2010). Grossmann and Kross (2010) hypothesized that these cultural differences occur because individuals from interdependent cultures (valuing a holistic thinking style) tend to self-distance when analyzing their feelings more than individuals from independent cultures. Self-distancing in turn results in decreased negative affect and increased reconstruing of memories in a way that promotes insight and closure. Thus, rumination may not be as associated with poor psychological adjustment for East Asian trauma survivors.

While rumination involves excessive focus on past events, worry is directing attention towards future-oriented negative outcomes (Borkovec, Robinson, Pruzinsky, & De Pree, 1983). Worry has a moderate positive association with PTSD (Seligowski et al.; 2015,) and has been conceptualized as a means of emotional avoidance, given that worry is a cognitive activity that may allow escape from unpleasant bodily sensations and emotions (Tull, Hahn, Evans, Salters-Pedneault, & Gratz, 2011). Theoretical models suggest that beliefs about worry differentially influence the use of this strategy (Prados, 2011). Dugas and colleagues (1998) and Wells (1995) both focus on the role of positive beliefs about worry (e.g., “worrying makes me more prepared”), suggesting that individuals holding these beliefs may be more likely to strategically use worry to manage distress. Cross-culturally, this leads to potential differences between the use of worry in East Asian cultures, which tend to be future-oriented and focus on the avoidance of harm, and Western cultures, which tend to be present-oriented and focus on the attainment of positive outcomes (Schwartz & Melech, 2000). Given that many East Asian cultures strongly endorse being prepared for the future, individuals within this group may be more likely to view worry as a typical and acceptable behavior rather than a symptom of being overwhelmed or stressed. Whilst few studies have explored cross-cultural differences in worry (e.g., Watari & Brodbeck, 2000), it is plausible that worry may not be as detrimental for East Asian trauma survivors.

Two additional emotion regulation strategies implicated in PTSD are experiential avoidance and reappraisal. Experiential avoidance (i.e., avoiding contact with uncomfortable thoughts, feelings, and memories; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) has consistently been found to be associated with PTSD in Western populations (e.g. Kumpula, Orcutt, Bardeen, & Varkovitzky, 2011; Palm & Follette, 2011), with a large effect size observed (Seligowski et al., 2015). Like suppression, experiential avoidance is hypothesized to maintain overgeneralized associations between the trauma and internal experiences because the active avoidance prevents the individual from learning new information to challenge these associations (Ehlers & Clark, 2000). In contrast, reappraisal (i.e., reinterpreting the meaning of a stimulus to change its emotional impact; Gross, 1998) is broadly considered to be an effective emotion regulation strategy because it gives individuals the opportunity to challenge distressing or inaccurate appraisals about the trauma (e.g., Boden, Bonn-Miller, Kashdan, Alvarez, & Gross, 2012; Moore et al., 2008). At this stage, there is little cross-cultural research regarding the use of either reappraisal or experiential avoidance, thus, there is insufficient cross-cultural theory or evidence to generate hypotheses. However, given the prominence of these two emotion regulation strategies in the PTSD literature, both strategies will be explored in the current study.

Given that healthy individuals of different cultural groups vary in their regulation of emotion, it would follow that emotion regulation processes also function differently in the context of psychopathology. However, as of yet, no research has investigated the influence of culture on emotion regulation in the context of PTSD. Therefore, the aim of the present study was to investigate the relationship between culture and key emotion regulation strategies implicated in PTSD; namely, expressive suppression, thought suppression, rumination, worry, experiential avoidance, and reappraisal (Seligowski et al., 2015). We hypothesized that Caucasians with PTSD would report higher levels of habitual thought suppression,

expressive suppression, rumination, worry, experiential avoidance, and general emotion dysregulation, and lower levels of reappraisal than Caucasians without PTSD. Second, we hypothesized that the differences in the use of expressive suppression, rumination, and worry would be less marked between East Asians with and without PTSD, when compared to the differences observed in the Caucasian group. Due to limited previous research, we generated no hypotheses regarding East Asians and the use of thought suppression, reappraisal, experiential avoidance, and general emotion dysregulation in PTSD. Therefore, analyses of these variables were exploratory.

## **4.4 Method**

### **4.4.1 Participants**

Participants ( $N = 69$ ) with trauma exposure were recruited through flyers displayed in community centers, universities, shopping centers, and on social media. Adopting the approach of previous cross-cultural clinical research (e.g., Dritschel, Kao, Astell, Neufeind, & Lai, 2011; Jobson & Dalgleish, 2014), participants were sampled from two cultural groups: individuals who identified as East Asian Australians (hereon referred to as ‘East Asian’) with both parents and all four grandparents born in an East Asian country, including China, Japan, South Korea, and Taiwan ( $n = 38$ ), and Caucasian Australians (hereon referred to as ‘Caucasian’) with both parents and all four grandparents born in Western individualistic countries, including Australia, the UK, New Zealand, Canada, and the USA ( $n = 31$ ). Exclusion criteria included a current diagnosis of substance use disorder, a history of psychosis, and brain injury. Participants were also excluded if they believed they would not be able to complete the tasks in English. No participants were excluded based on these eligibility criteria.

Participants were allocated to the PTSD or no-PTSD groups based on the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al. 2013) resulting in four

groups; Caucasian PTSD group ( $n = 16$ ), Caucasian no-PTSD group ( $n = 15$ ), Asian PTSD group ( $n = 15$ ), and Asian no-PTSD group ( $n = 23$ ). The CAPS-5 was administered and scored by the first author. The second author, who is a clinical psychologist and was blind to cultural group and previous diagnosis, co-rated 25% of the interviews that were randomly selected. There was complete agreement between raters. The majority of participants reported experiencing more than one potentially traumatic event and identified index traumas included accidents (33.3%), family violence (23.2%), life-threatening illnesses (18.8%), sexual assaults (14.5%), non-sexual assaults (7.2%), and natural disasters (2.9%). No significant differences were found between groups with respect to trauma type or trauma history.

#### **4.4.2 Measures**

##### **Trauma history and depression**

**Trauma History Questionnaire (THQ; Green, 1996).** The THQ was used to assess participants' exposure to potentially traumatic events. Participants were presented with a series of traumatic events and were asked to indicate whether they had previously experienced each of these events. If participants answered yes, they were requested to indicate the number of times the event had occurred and their approximate age at the time of the event. The THQ has been previously used in cross-cultural research (e.g., Jobson & O'Kearney, 2009)

**Hopkins Symptom Checklist-25 (HSCL-25; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974).** The HSCL-25 was used to measure depression. This measure features 15 items regarding depression symptoms. Participants were asked to indicate how often they had experienced each symptom over the last week ranging from 1 (*not at all*) to 4 (*extremely*). The HSCL is regularly used in cross-cultural trauma research (Kleijn, Hovens, & Rodenburg, 2001)

##### **Emotion regulation measures**

In order to assess the domains of emotion regulation we administered a series of gold-standard measures. These included the following questionnaires.

**Emotion Regulation Questionnaire (ERQ; Gross & John, 2003).** The ERQ was used to assess participants' use of expressive suppression and reappraisal. This 10-item questionnaire provided participants with prompts, such as "I keep my emotions to myself". Participants were required to respond to these prompts using scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The ERQ has been used in cross-cultural research (e.g., Li & Wu, 2018). In the current study internal consistency for the reappraisal and suppression subscales was found to be adequate; East Asian reappraisal Cronbach  $\alpha = .80$ ; suppression Cronbach  $\alpha = .69$ ; Caucasian reappraisal Cronbach  $\alpha = .84$ , suppression Cronbach  $\alpha = .81$ .

**White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994).** The WBSI was used to measure habitual thought suppression. This measure consisted of 15 statements (e.g., "I have thoughts that I cannot stop."). Participants indicated the extent to which they believed each of the statements applied to them using a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The WBSI has been used in cross-cultural research (e.g., Cook & Hayes, 2010). In the current study internal consistency was found to be good; East Asian Cronbach  $\alpha = .91$ , Caucasian Cronbach  $\alpha = .93$ .

**Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990).** The PSWQ was used to assess habitual worry. Participants were provided with 16 statements, such as "If I do not have enough time to do everything, I do not worry about it", and were asked to rate each statement on a 5-point scale ranging from 1 (*not at all typical of me*) to 5 (*very typical of me*). The PSWQ has been used in cross-cultural research (Hui & Zhihui, 2017). In the current study internal consistency was found to be Cronbach  $\alpha = .78$  for the East Asian sample and Cronbach  $\alpha = .73$  for the Caucasian sample.

**Acceptance and Action Questionnaire-II (AAQ-II; Bond, et. al., 2011).** The AAQ-II was used to assess habitual experiential avoidance. Participants were presented with 10 statements (e.g., “It’s okay if I remember something unpleasant”) and were asked to indicate how true each statement was for them on a 7-point scale ranging from 1 (*never true*) to 7 (*always true*). The AAQ-II has been used in cross-cultural research (Yao, Yao, Wang, Li, & Lan, 2013). In the current study internal consistency was found to be Cronbach  $\alpha = .73$  for the East Asian sample and Cronbach  $\alpha = .63$  for the Caucasian sample.

**Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and Responses to Intrusions Questionnaire (RIQ; Clohessy & Ehlers, 2005).** Rumination was assessed using the rumination scale of the RSQ, which assesses general, habitual rumination, and the rumination scale of the RIQ, which specifically assesses rumination about the trauma and/or its consequences. The RSQ and RIQ have been used in cross-cultural research (e.g., Bernardi & Jobson, in press). In the current study, internal consistency of the RSQ was  $\alpha = .93$  for the East Asian sample and  $\alpha = .91$  for the Caucasian sample and for the RIQ  $\alpha = .92$  for the East Asian sample and  $\alpha = .93$  for the Caucasian sample.

**Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).** The DERS was used to assess general emotion dysregulation. This 36-item measure presented participants with statements examining general emotion dysregulation (e.g., “I am clear about my feelings”). Participants were asked to indicate how often each statement applied to them using a 5-point scale from 1 (*almost never, 0-10%*) to 5 (*almost always, 91-100%*). The DERS has been used in cross-cultural research (e.g., Li, Han, Gao, Sun, & Ahemaitijiang, 2018). In the current study internal consistency was found to be Cronbach  $\alpha = .91$  for the East Asian sample and Cronbach  $\alpha = .86$  for the Caucasian sample.

### 4.4.3 Procedure

Following informed consent, trauma exposure was assessed using the THQ. Eligible participants were then interviewed using the CAPS-5. Participants then completed the ERQ, PSWQ, AAQ-II, WBSI, DERS, RSQ, RIQ, and HSCL-25. Participants were reimbursed \$20 for their participation in the study. This study was approved by [edited out for blind review]. Informed consent was obtained through use of an explanatory statement and consent form.

### 4.4.4 Data Analysis

Data was analyzed using a series of 2 (culture; East Asian, Caucasian) x 2 (diagnosis; PTSD, no-PTSD) analysis of variances (ANOVAs), and in one case a multivariate analysis of variance (MANOVA). IBM SPSS Statistics v25 software was used for all analyses. One participant failed to complete three measures and was excluded from analysis of these variables.

## 4.5 Results

### 4.5.1 Group Characteristics

Table 2 presents group characteristics. These characteristics were examined using a series of 2 (culture; East Asian, Caucasian) x 2 (diagnosis; PTSD, no-PTSD) analysis of variances (ANOVAs). In terms of age, the Caucasian group was significantly older than the East Asian group,  $F(1,65) = 7.06, p = .01, \eta_p^2 = .10$ . The diagnosis main effect,  $F(1,65) = .06, p = .81, \eta_p^2 = .001$ , and interaction,  $F(1,65) = .11, p = .74, \eta_p^2 = .02$ , were both non-significant. The four groups did not differ significant in gender distribution,  $\chi^2 (df= 3, N= 69) = 4.36, p = .23$ , or education distribution,  $\chi^2 (df= 6, N= 69) = 6.37, p = .38$ . As expected, the Caucasian group reported having lived in Australia for significantly longer than the East Asian group,  $F(1,65) = 66.90, p < .001, \eta_p^2 = .51$ . The diagnosis main effect,  $F(1,65) = 1.35, p = .25, \eta_p^2 = .02$ , and interaction,  $F(1,65) = .03, p = .87, \eta_p^2 < .001$ , were both non-significant.



A similar pattern of results to that reported below emerged when length of time in Australia was included as a covariate.

In terms of time since index trauma, the culture main effect,  $F(1,65) = .01, p = .91, \eta_p^2 < .001$ , diagnosis main effect,  $F(1,65) = .63, p = .43, \eta_p^2 = .01$ , and interaction,  $F(1,65) = .83, p = .37, \eta_p^2 = .01$ , were all non-significant. As expected, the PTSD groups reported significantly greater PTSD symptoms than the no-PTSD group,  $F(1,65) = 177.40, p < .001, \eta_p^2 = .73$ . The culture main effect,  $F(1,65) = 2.20, p = .14, \eta_p^2 = .03$ , and interaction,  $F(1,65) = .003, p = .95, \eta_p^2 < .001$ , were both non-significant. The culture x diagnosis interaction was significant for depression,  $F(1,65) = 4.91, p = .03, \eta_p^2 = .07$ . Follow-up analysis revealed that both PTSD groups reported significantly greater depression than the no-PTSD groups; East Asian,  $F(1,35) = 4.23, p < .05, \eta_p^2 = .11$ , Caucasian,  $F(1,28) = 28.11, p < .001, \eta_p^2 = .50$ . The PTSD groups,  $F(1,28) = 1.97, p = .17, \eta_p^2 = .07$ , and no-PTSD groups,  $F(1,35) = 3.05, p = .09, \eta_p^2 = .08$ , did not differ significantly.

#### **4.5.2 Emotion Regulation**

For expressive suppression and reappraisal, we used a 2 (culture; East Asian, Caucasian) x 2 (diagnosis; PTSD, no-PTSD) multivariate analysis of variance (MANOVA), with reappraisal and expressive suppression as the dependent variables. For the other emotion regulation strategies, 2 (culture; East Asian, Caucasian) x 2 (diagnosis; PTSD, no-PTSD) ANOVAs were used, with each emotion regulation strategy as the dependent variable.

##### **Expressive suppression and reappraisal (ERQ)**

The MANOVA revealed a significant culture x diagnosis interaction, Wilks' Lambda = .81,  $F(2, 64) = 7.48, p = .001, \eta_p^2 = .19$ . The univariate ANOVAs found that the culture x diagnosis interactions were significant for both reappraisal,  $F(1,69) = 8.80, p < .01, \eta_p^2 = .12$ , and suppression,  $F(1,69) = 4.40, p = .04, \eta_p^2 = .06$ . Follow-up analyses showed that the Caucasian PTSD group reported significantly less use of reappraisal,  $t(29) = 3.58, p = .001, d$

= 1.29, and significantly greater use of expressive suppression,  $t(29) = -.373, p = .001, d = 1.33$ , than the Caucasian no-PTSD group. In contrast, for the East Asian groups reappraisal,  $t(36) = .77, p = .45, d = 0.25$ , and expressive suppression,  $t(36) = .85, p = .40, d = .27$ , did not differentiate between those with and without PTSD. Regarding expressive suppression, the PTSD groups,  $t(29) = 1.40, p = .17, d = .50$ , and no-PTSD groups,  $t(36) = 1.57, p = .13, d = .51$ , did not differ significantly. With respect to reappraisal, the East Asian PTSD group did not differ from Caucasian PTSD group,  $t(29) = 1.67, p = .11, d = .59$ , however the Caucasian no-PTSD group scored significantly higher than the East Asian no-PTSD group,  $t(36) = 2.71, p = .01, d = .91$ .

### **Worry (PSWQ)**

We found a significant diagnosis x culture interaction for worry,  $F(1,69) = 4.46, p < .05, \eta_p^2 = .06$ . Follow-up analyses showed that the Caucasian PTSD group reported significantly greater worry than the Caucasians no-PTSD group,  $t(29) = 2.68, p = .01, d = .97$ . However, no significant difference was found between East Asians with and without PTSD,  $t(36) = .35, p = .73, d = .12$ . Further, there was no significant difference between the PTSD groups,  $t(29) = 1.59, p = .12, d = .57$ , or no-PTSD groups,  $t(36) = 1.41, p = .17, d = .63$ .

### **Rumination (RSQ and RIQ)**

For habitual rumination (RSQ) the diagnosis main effect was significant,  $F(1, 65) = 17.73, p < .001, \eta_p^2 = .21$ ; those with PTSD, regardless of cultural group, reported significantly greater habitual rumination than those without PTSD. The cultural main effect,  $F(1, 65) = 1.59, p = .21, \eta_p^2 = .02$ , and interaction,  $F(1, 65) = 1.19, p = .28, \eta_p^2 = .02$ , were both non-significant. For trauma-specific rumination (RIQ), the diagnosis main effect was significant,  $F(1,65) = 41.51, p < .001, \eta_p^2 = .39$ ; those with PTSD reported significantly greater trauma-specific rumination than those without PTSD. The cultural main effect,  $F(1, 65) =$

.22,  $p = .64$ ,  $\eta_p^2 < .01$ , and interaction,  $F(1, 65) = .80$ ,  $p = .37$ ,  $\eta_p^2 = .01$ , were both non-significant.

### **Habitual experiential avoidance (AAQ-II)**

For experiential avoidance, the diagnosis main effect was significant,  $F(1, 64) = 23.23$ ,  $p < .001$ ,  $\eta_p^2 = .27$ ; those with PTSD reported significantly greater habitual experiential avoidance than those without PTSD. The culture main effect,  $F(1,64) < .01$ ,  $p = .93$ ,  $\eta_p^2 < .001$ , and interaction,  $F(1,64) = 3.34$ ,  $p = .07$ ,  $\eta_p^2 = .05$ , were not significant.

### **Habitual thought suppression (WBSI)**

For habitual thought suppression, we found that the diagnosis x culture interaction was significant,  $F(1,64) = 7.60$ ,  $p < .01$ ,  $\eta_p^2 = .11$ . Follow-up analyses found that the Caucasian PTSD group reported significantly greater habitual thought suppression than the Caucasian no-PTSD group,  $t(29) = 5.86$ ,  $p < .001$ ,  $d = 2.14$ . However, habitual thought suppression did not significantly differentiate between East Asians with and without PTSD,  $t(35) = 1.80$ ,  $p = .08$ ,  $d = .63$ . It is worth noting that the East Asian result was approaching significance (those with PTSD reporting greater thought suppression than those without PTSD) and a moderate effect size emerged. However, the effect size for the East Asian group was considerably smaller than that found for the Caucasian group. Further, the East Asian PTSD group scored significantly lower than the Caucasian PTSD group,  $t(29) = 2.27$ ,  $p = .031$ ,  $d = .82$ , although there was no significant difference between the no-PTSD groups,  $t(35) = 1.84$ ,  $p = .075$ ,  $d = .63$ .

### **General emotion dysregulation (DERS)**

Analysis of DERS scores indicated a significant interaction effect,  $F(1, 64) = 5.48$ ,  $p = .04$ ,  $\eta_p^2 = .07$ . Further investigation indicated that although the Caucasian PTSD group reported significantly greater general emotion dysregulation than the Caucasian no-PTSD group,  $t(24.80) = 3.76$ ,  $p = .001$ ,  $d = 1.36$ , there was no significant difference between the

East Asian groups,  $t(35) = 1.24, p = .22, d = .42$ . The East Asian PTSD group did not differ from Caucasian PTSD group,  $t(29) = .91, p = .37, d = .33$ , and the East Asian no-PTSD scored significantly higher than Caucasian no-PTSD group,  $t(35) = 2.32, p = .03, d = .79$ . Analysis of the DERS subscales individually revealed a similar pattern of results.

#### 4.6 Discussion

This study explored cultural differences in the use of emotion regulation strategies in East Asian and Caucasian participants with and without PTSD. First, as predicted, Caucasians with PTSD reported significantly greater expressive suppression, thought suppression, rumination, experiential avoidance and worry, and lower levels of reappraisal than Caucasians without PTSD. Further, as predicted, the differences in expressive suppression and worry between East Asians with and without PTSD were less marked than those found for the Caucasian group; indeed, expressive suppression and worry did not differentiate between East Asians with and without PTSD. However, contrary to predictions, in both cultural groups those with PTSD reported significantly higher habitual and trauma-specific rumination than those without PTSD. With respect to our exploratory analyses, while East Asians with PTSD reported significantly greater experiential avoidance than East Asians without PTSD, reappraisal, thought suppression and general emotion dysregulation did not differentiate between East Asians with and without PTSD.

Our findings support the immense research conducted with Western populations that has identified expressive suppression and worry as unhelpful emotion regulation strategies associated with PTSD (Seligowski et al., 2015). However, our findings also align with emerging cross-cultural research that has identified that expressive suppression may not be detrimental for members of interdependent cultures (Ford & Mauss, 2015). Whilst independent cultures perceive expressive suppression as compromising self-expression and authenticity, Asian cultures endorse expressive suppression as pro-social and aligning with

interpersonal harmony (Ford & Mauss, 2015). Thus, expressive suppression aligns with cultural expectations and norms in Asian cultures and is therefore not necessarily associated with poor mental health, including in this instance PTSD. Similarly, given that East Asian cultures value being prepared for the future (Schwartz & Melech, 2000), East Asian individuals may perceive worry as typical and acceptable, rather than as a pathological symptom of being overwhelmed or stressed. Therefore, it is possible that emotion regulation strategies that are normalized within a culture may not necessarily be maladaptive in PTSD (e.g., Ford & Mauss, 2015).

Contrary to expectations, increased rumination was associated with PTSD in East Asians in a similar pattern to that observed in the Caucasian sample. Thus, the expected cross-cultural difference typically found in healthy populations was not observed. There are two types of rumination: intrusive rumination and deliberate rumination (Blackburn & Owens, 2016; Taku, Cann, Tedeschi, & Calhoun, 2009). Intrusive rumination is characterized as involuntary or being triggered by a reminder in the environment, and often focuses on “what if” or “if only” thoughts (Martin & Tesser, 1996; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). In contrast, deliberate rumination involves mindfully choosing to think about past experiences in a non-judgmental manner (Martin & Tesser, 1996; Treynor et al., 2003). Intrusive rumination has been the focus of Western PTSD research (Seligowski et al., 2015), and as such was the variable assessed in this study. However, deliberate rumination is more consistent with a holistic thinking style and may therefore be the sub-type of rumination used most frequently and adaptively by East Asians when prompted to ruminate. Thus, the cross-cultural differences observed in previous research may reflect differences in the frequency of habitual use of intrusive versus deliberate rumination, rather than focusing on the different outcomes associated with each process. This hypothesis is consistent with Grossmann and Kross’s (2010) finding that self-distancing – a key component

of deliberate rumination – mediates cultural differences in the psychological outcomes of rumination.

Surprisingly, general emotion dysregulation varied between Caucasians with and without PTSD but not East Asians. Further analysis revealed that this interaction was driven by elevated scores in the East Asian no-PTSD group. It is unclear why this pattern of results emerged. It would be expected that general emotion regulation would be disrupted for East Asians with PTSD, even if they did not endorse using the same strategies as Caucasians, given that a key diagnostic criterion of PTSD is high levels of distress which impair functioning (American Psychiatric Association, 2013). One possibility is that the DERS pathologizes some behaviors, ideas, or strategies which are normalized and accepted in East Asian cultures (for example, “when I’m upset, it takes me a long time to feel better”), resulting in the non-clinical East Asian groups also scoring highly on this measure.

Experiential avoidance was found to be associated with PTSD for both East Asians and Caucasians. This is consistent with Ehlers and Clark’s (2000) cognitive theory of PTSD, which argues that meaningful interactions with internal experiences are necessary in order to develop adaptive appraisals about trauma-related stimuli. However, we also found that levels of reappraisal did not differentiate between East Asians with and without PTSD. One potential explanation for this finding is that the reappraisal questionnaires examine the concept of reappraisal from a Western perspective and thus may not be capturing East Asians’ reappraisal tendencies. For example, the ERQ-R frames items in the context of a desire to change current emotional experience. However, Eastern Asian cultures tend to be more accepting of negative emotional experiences and often aim to adapt to current situations (Bagozzi et al., 1999; De Vaus et al., 2017). Therefore, the goal of reappraisal may not be to change current emotional experience but rather to develop a holistic understanding of the

traumatic event. As such, prompts phrased as “I control my emotions by...” or “when I want to feel less negative emotion...” may not have been endorsed by East Asians.

This study has several theoretical implications. Emotion regulation has been implicated as a key factor in PTSD. However, this study suggests that the associations between strategies for regulating emotions and PTSD symptoms may differ between East Asian and Caucasian trauma survivors. This supports recent positions claiming that culture influences the way in which emotions are perceived and appraised, thereby, impacting emotional disorders (de Vaus et al., 2017; Varnum et al., 2010). For instance, East Asian cultures tend to be more tolerant of negative emotion because they are not perceived as oppositional to positive emotion and thus those from East Asian cultures can tolerate the experience of two “competing” emotional responses (Bagozzi et al., 1999; de Vaus et al., 2017). Such a position is inconsistent with many Western models of emotion and PTSD, which feature positive and negative emotions occurring consecutively with an ultimate resolution, rather than simultaneously co-occurring (e.g., Ehlers & Clark, 2000). Thus, there is a need for the integration of models of PTSD with cross-cultural models of emotion to better understand emotion regulation in non-Western populations. This study also suggests that some of the gold-standard measures of emotion regulation used in PTSD research may not capture emotion regulation disruptions in East Asian patients. Thus, healthy individuals may be categorized as pathological despite the effective use of emotion regulation strategies for their context, or unwell patients may go unidentified. Further, clinicians may struggle to understand which emotion regulation processes are disrupted when assessing East Asians with PTSD. Potential factors to explore in the measurement of emotion dysregulation in East Asians include the impact of a dialectic thinking style and higher tolerance for negative emotions (Spencer-Rodgers et al., 2015).

If our findings are found to be robust, key questions arise regarding the clinical treatment of PTSD in East Asian patients. Evidence-based treatment for PTSD recommends that clinicians assist clients in developing emotion regulation skills in order to tolerate exposure to trauma-related triggers (Frewen & Lanius, 2006). However, the current study suggests that reappraisal, the primary emotion regulation skill taught in cognitive restructuring, was not associated with lower PTSD symptoms in East Asian trauma survivors, and therefore may be either ineffective or function differently for East Asian clients. As such, without appropriate development of emotion regulation skills, East Asian clients may be more likely to feel overwhelmed and unprepared when progressing to exposure component of treatment, potentially leading to increased drop-out or poorer treatment outcomes (Trusz, Wagner, Russo, Love, & Zatzick, 2011). Further, at this stage, we have not identified protective emotion regulation strategies for East Asians, and therefore cannot make clinical recommendations for tailoring treatment for working with these clients' appraisals. Future longitudinal studies are required to identify protective strategies for East Asians. In the absence of direction from research, clinicians are likely to be working with a process of trial and error for treatment of East Asian clients, which in turn may lead to poorer outcomes or lengthier treatment duration. As such, there is a clear impetus for further research to identify effective emotion regulation strategies for East Asians in order to inform clinical treatment.

The shortcomings of this study are acknowledged. First, this study was conducted in Australia, a predominately Western cultural environment. This may result in East Asian participants being more likely to have Western cultural characteristics than those living in their countries of birth, given potential acculturation. However, this approach is consistent with previous cross-cultural clinical studies (Dritschel et al., 2011; Grossman & Kross, 2010; Jobson & Dalgleish, 2014). Second, as with all cross-cultural research, language and task understanding must be considered. For many East Asian participants, the interview and



psychometric measures were completed in their second language, which may have influenced capacity to communicate experiences. Third, due to the small sample size and preliminary nature of the present study, it cannot be assumed that these findings are generalizable to the larger population. The power of statistical analyses conducted is limited by the relatively small sample size, and as such, all findings ought to be interpreted cautiously. Fourth, mechanisms underlying the cross-cultural differences observed cannot be inferred in the absence of measures to assess potential explanatory cultural variables, such as independence/interdependence and dialectical thinking style. Finally, as a cross-sectional study, no inferences can be made as to whether the strategies explored were predisposing or maintaining factors for PTSD. Despite these limitations, this study provides an important first step in exploring cross-cultural differences in the use of emotion regulation strategies in PTSD and highlights the urgent need for further research in the area.

**Table 2***Mean and (Standard Deviations) for Group Characteristics for Demographic and Study**Variables*

	Caucasian no-PTSD (n=15)	Caucasian PTSD (n = 16)	East Asian no- PTSD (n = 23)	East Asian PTSD (n = 15)
Age (years)	29.40 (13.87)	30.81 (12.66)	23.74 (6.72)	23.53 (5.04)
Gender F:M (n)	13:2	14:2	16:7	14:1
Education <sup>a</sup>	9:6:0	7:7:2	15:5:3	9:6:0
Years in Australia	26.27 (15.61)	30.00 (11.69)	3.63 (9.37)	6.46 (9.51)
Years since trauma	6.09 (8.62)	6.33 (7.96)	7.69 (9.74)	4.24(5.22)
Depression	1.54 (0.35)	2.57 (0.67)	1.85 (0.61)	2.26 (0.57)
Reappraisal	32.80 (5.06)	25.19 (6.64)	27.78 (5.90)	29.53 (8.11)
Suppression	12.60 (4.70)	18.69 (4.40)	14.87 (4.13)	16.20 (5.49)
Experiential Avoidance	19.40 (7.53)	33.50 (9.19)	23.45 (8.13)	29.80 (9.72)
Worry	42.67 (12.56)	55.69 (14.36)	49.43 (15.60)	47.73 (13.48)
Thought Suppression	41.07 (10.49)	62.34 (9.39)	48.55 (13.18)	55.55 (7.65)
Rumination	43.00 (9.16)	58.38 (12.19)	49.83 (13.19)	58.87 (11.65)
Rumination - Trauma	16.87 (8.43)	34.06 (9.59)	20.07 (10.52)	33.07 (9.10)
General Emotional Dysregulation	65.14 (16.49)	96.04 (27.51)	79.85 (20.37)	88.22 (19.86)

*Note:* <sup>a</sup> high school:undergraduate diploma/degree:postgraduate.

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## **Chapter 5: Culture, Emotion Regulation, and their Relevance in Cognitive Behavior Therapy and Individual Case Conceptualization (Paper 3)**

### **5.0 Conceptual Framework**

Although many clinicians currently work with culturally diverse trauma survivors, there is limited empirical research about modifying established treatments for these populations. Therefore, the final aim of this thesis was to highlight key components of CBT that may need to be addressed when structuring culturally-sensitive treatment. To address this aim, a book chapter was developed to provide a framework for clinicians to guide modification of CBT for culturally diverse clients. Given that generating empirical research and RCTs is a lengthy process, the purpose of this chapter was to provide clinicians with some guidelines to inform culturally-sensitive hypotheses around emotion regulation while waiting for further empirical cross-cultural studies. The findings of Study 1 and 2, along with the cross-cultural literature, were used to identify key factors that clinicians may need to consider when modifying CBT. A case study was then presented to allow for application of the concepts presented in this chapter to a hypothetical case in order to further understanding.

This chapter also aimed to provide a summary of cultural differences in beliefs about emotions, self-construal, and holistic versus analytical thinking styles in order to help clinicians to make specific hypotheses about their clients' preferences for emotion regulation strategies, as well as the likely outcomes of these strategies based on their cultural context.

### 5.1 Declaration for Thesis Chapter Five

**Declaration of the Candidate:** In the case of Chapter Five, the nature and extent of my contribution to the work was the following:

<b>Nature of Contribution</b>	<b>Extent of Contribution</b>
Consultation with editors, writing manuscript.	60%

The following co-authors contributed to the work:

<b>Name</b>	<b>Nature of Contribution</b>
Nikolaos Kazantzis	Writing manuscript and critical review of manuscript.
Laura Jobson	Writing manuscript and critical review of manuscript.

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

**Candidate's Signature:**

**Main Supervisor's Signature:**

*Original Article*

**Culture, emotion regulation, and their relevance in cognitive behavior therapy and individual case conceptualization.**

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Jobson, L. <sup>1</sup>, Nagulendran, A. <sup>1</sup>, & Kazantzis, N. (Under Review). Culture, emotion regulation, and their relevance in cognitive behavior therapy and individual case conceptualization. *In: Diversity & Social Justice in Counseling Psychology & Psychotherapy: A case study approach*. Eds.: Kassan, A., & Moodley, R. California: Cognella Press.

1. Dr. Laura Jobson and Ms. Amanda Nagulendran are equal first co-authors. The final publication will include a statement of contribution indicating the relative input of each author to address this.

## 5.2 Introduction

Cognitive Behavior Therapy (CBT) refers to a broad range of psychotherapeutic approaches that place a central focus on the reciprocal influence between clients' thoughts, emotions, physiology, and behaviors in understanding both the cause and maintenance of clinical problems (Hayes & Hofmann, 2017; Westbrook, 2011). Beckian cognitive therapy, behavioral activation therapy, schema focused therapy, and mindfulness-based cognitive therapy are all part of the family of CBTs (Kazantzis, Freeman, & Reinecke, 2010). CBTs place a focus on clients' present experiences while also understanding perpetuating emotion, thought, and behavior patterns as a reflection of early life development and important events through the lifetime. In the delivery of traditional CBT (i.e., Beck, 2011), clients are engaged in a process of collaborative-empiricism (Kazantzis, Beck, Dattilio, Dobson, & Rapee, 2013) which requires the therapist to join with the client in identifying and testing out aspects of their subjective experience. As such, CBTs are well-suited to being adapted for a wide range of populations.

This chapter will focus on the modification of CBT for culturally diverse groups. The aim of this chapter is therefore to identify psychological processes typically addressed across CBT models, which are systematically shaped by the lived experience and socio-cultural context of clients. This chapter will first discuss cultural influences on the self, autobiographical memory, cognitions and appraisals, and emotion regulation with respect to their focus in CBT. A case study will then be presented, allowing application of the issues raised in this chapter to a specific client. Finally, implications for culturally sensitive practice, training, research, and policy will be discussed.

## 5.3 Influences of Culture on Thoughts, Emotions and Behavior

Culture consists of both internal features (i.e., attitudes and beliefs) and external features (i.e., roles and institutions), which together endorse what is moral, imperative, and

desirable (Hofstede, 2001; Marsella, 2005). Thus, culture is the patterns of historically derived ideas that are socially transmitted and pervasively influence the way that individuals in a group think, feel, and behave (Kroeber, 1978; Marsella, 2005). Given the focus of CBT on cognition, emotion and behavior, it is imperative that clinicians consider the profound influence of culture on these three domains when developing individual case conceptualization and client-centered CBT interventions.

### **5.3.1 Culture and the Self**

The most theoretically developed and empirically investigated area in cross-cultural psychology is cultural differences in self-construal. In Western individualistic cultures the self is perceived as an independent entity that emphasizes personal uniqueness, autonomy, self-expression, the pursuit of personal individual goals, and control over one's own beliefs and actions (Markus & Kitayama, 2010). As CBT has evolved in Western culture, the independent aspect of self is inherent in CBT theory, assessment, case conceptualization and treatment. However, adopting a global perspective, many societies and cultures do not prescribe to valuing the independence of self. Instead those from collectivistic cultures (e.g., East Asian, African) tend to emphasize the interdependence of self, whereby, relatedness and connectedness with others are valued, personal attitudes and behaviors are determined by the demands of the in-group, and the individual is motivated to fulfil social obligations (Markus & Kitayama, 2010).

Cultural differences in self influence the cognition, emotion and behavior of individuals. This burgeoning area of cross-cultural psychology research has demonstrated that sustained exposure to a set of cultural experiences and behavioral practices that emphasize either independence or interdependence influence the way in which individuals process information, make decisions, direct attention, remember personal life experiences, and activate schema, including the underpinning neural structures and function (see Park &

Huang, 2010; Liddell & Jobson, 2016, Wang & Ross, 2010; Weber & Morris, 2010). This has clear clinical implications given CBT focuses on the processing of information, decision-making, personal judgments, attentional biases, and schema. Cultural differences in self-construal also influence personality, characteristic adaptations, and life narratives (Church, 2010). Finally, of relevance to psychopathology, CBT, and case conceptualization, culture functions to enable individuals to learn what to become emotional about, what kinds of appraisals and reactions to have following an elicited emotion, and how to regulate and express emotions (Ford & Mauss, 2015; Jobson et al., 2019; Mesquita & Walker, 2003). These examples highlight the extent of the influence of cultural differences in self on human cognition, behavior and emotion, thereby, demonstrating the importance of considering the self-concept in cultural adaptations of CBT. Several of the most relevant domains to CBT will be expanded on below.

### **5.3.2 Memory.**

Autobiographical memory is the encoding, storage, and retrieval of information about the self and personal lived experiences (Conway, 2005). Although CBT focuses on the present, therapy as a whole relies on the use of clients' memories to generate hypotheses. Thus, autobiographical memory forms the basis of assessment, provides information to guide case conceptualizations, and offers material for therapy sessions. For example, while behavioral experiments within the therapy room can be a rich source of information, developing a broader understanding of clients' lifelong patterns of relating to others, the world, and the self requires therapists to gain understanding of clients' past. Thus, the client is required to retrieve and communicate their past experiences in order for clinicians to facilitate a shared understanding of what is happening in the present. In CBTs specifically, drawing on clients' past experiences is often central to cognitive restructuring, wherein clients look for evidence within their own experiences to evaluate the validity of a distressing

belief. Frequently used challenges to automatic thoughts may include statements such as, “Previously when I have [done an anxiety-provoking activity], nothing catastrophic has happened – do I have reason to expect that this time is likely to be any different?”

Culture and autobiographical memory are inextricably linked. Autobiographical memory integrates individual experiences of self with cultural frames for making meaning from past events, including beliefs around how events occurred, why others’ actions played out as they did, and why an experience is important. Culture and autobiographical memory interact through two primary mechanisms (Fivush, Habermas, Waters, & Zaman, 2011). First, autobiographical memory is shaped by the telling and retelling of significant life events to other social figures, including friends, family, and health care professionals. Social figures, in turn, respond to these stories by validating beliefs and values that are endorsed within the cultural group, and potentially rejecting or challenging less accepted beliefs. For example, an assault survivor may receive different responses when describing the clothes they were wearing at the time of the attack based on the cultural norms of acceptable clothing for a person of their gender and age, in turn shaping the survivor’s beliefs around the cause of the attack. Second, individuals draw on the sociocultural models available for making sense of their life story - that is, the expected progression through life stages and events. For example, remaining in the same professional role for five years may be considered stagnation and failure in some cultural narratives, but thought of as reliability and loyalty in others. Cultural considerations regarding autobiographical memory are critical to understanding clients’ values around major life events, which has clear clinical implications for empathizing with clients and validating their emotional experiences within the context of their framework for what matters to them.

Returning to the example of Eastern and Western cultural differences, unique autobiographical memories are valued to a greater extent in Western cultures than Eastern

cultures (Ross & Wang, 2010). These differences reflect the understanding that autobiographical memory contributes to the development of an enduring individual self-concept. While Western individualism requires strong memories of personal experiences to define how an individual is different from others, Eastern collectivism does not place this emphasis on a sense of uniqueness and therefore autobiographical memories are less important to self-definition for these individuals. As a result, individuals from Eastern cultural backgrounds have less motivation to attend to or discuss unique autobiographical memories and tend to report fewer memories of their childhood, which may be important to consider in history-taking. There are also cultural variations in autobiographical memory content and structure. Individuals from Western cultures tend to provide memories that are lengthier, self-focused, egocentric, unique, and reflecting personal opinions and feelings. In contrast, individuals from Eastern cultural backgrounds tend to downplay these characteristics and instead recall memories focused on group activities and interpersonal relationships (Jobson & O’Kearney, 2009; Wang & Ross, 2007). Further, Western individuals recall a higher proportion of specific memories (i.e., events attached to a specific time and place) compared to Eastern individuals (Ross & Wang, 2010). Finally, individuals recall the past in ways that support their sense of self. That is, Westerners are more likely to remember positive things that they have done, while those from Eastern backgrounds are more likely to remember a balance of positive and negative things (Gelfand et al., 2002; Ross & Wang, 2007) Given these cultural differences, it is important for clinicians to remember that culture shapes the way clients recall their life history.

### **5.3.3 Appraisals**

A central target of CBT is to identify and assist a client in evaluating unhelpful cognitions and appraisals. Whilst the appraisal-emotion relationship is often assumed to be universal, cross-cultural research has questioned this assertion; culture establishes the



background against which individuals generate appraisals (Bernardi, Engelbrecht, & Jobson, in press; Bernardi & Jobson, in press; Mesquita & Walker, 2003). Early researchers demonstrated that certain appraisal domains were pan-cultural (e.g., pleasantness, coping ability), whilst complex appraisal dimensions, especially those focused on control and responsibility, tend to be culturally influenced (e.g., Frijda, Markham, Sato, & Wiers, 1995; Mauro, Sato, & Tucker, 1992). There is now significant research indicating that individuals from different cultures appraise events, emotions and life experiences differently (e.g., Bernardi et al., in press; Mesquita & Walker, 2003; Scherer, Schorr, & Johnstone, 2001). For instance, those from independent cultures tend to appraise achievement through agency, a personal sense of control and accomplishment. However, for those from interdependent cultures, personal agency and control often have less relevance and instead the interdependence of the individual and their social context, family and cohesion within a group or community is stressed (Bernardi et al., in press; Imada & Ellsworth, 2011; Mesquita & Walker, 2003; Zhang & Cross, 2011). Researchers have recognized that some people do not always choose to influence their social and physical environment and instead may flexibly adjust themselves to align with existing realities; 'secondary control' (Rothbaum, Weisz, & Snyder, 1982). Secondary control tends to be valued in non-Western cultures (Morling & Evered, 2006).

These cultural differences in appraisals of control and responsibility impact well-being. In Cheng and colleagues' (2013) meta-analysis, which investigated the magnitude of the influence of culture on the relationship between control and well-being, a moderately strong relationship was found for perceived control and depression. However, the association between perceived control and anxiety was weaker for collectivist cultures than individualist cultures. The researchers attributed such cultural differences to the reduced emphasis on agency in more collectivist societies and thus, highlight the importance of integrating the

cultural meaning of perceived control into the formulation of clinical theories and treatment approaches (Bernardi et al., in press; Bernardi & Jobson, in press). In the instance of the posttraumatic stress disorder (PTSD), trauma-related appraisals are targeted in evidence-based CBT approaches (Resick, 2001). Emerging evidence suggests, however, that for those from individualistic cultures appraisals of control, responsibility, and agency are very strong predictors of PTSD. For trauma survivors from collectivistic cultures appraisals of personal control, agency and mastery tend not to be as strongly associated with PTSD, rather appraisals of alienation and secondary control seem to be associated with PTSD (Bernardi and Jobson, in press; Engelbrecht & Jobson, 2014; Jobson & O’Kearney, 2008).

#### **5.3.4 Emotion regulation**

Emotion regulation refers to the ways in which clients modify their own emotional experiences and expressions to meet goals or situational requirements (Gross, 2014). Examples of emotion regulation include rumination (dwelling on one’s symptoms of distress and their consequences; McLaughlin & Nolen-Hoeksema, 2011), expressive suppression (inhibiting the outward expression of an emotion; Gross, 1998) and worry (directing attention towards future-oriented negative outcomes; Borkovec, Robinson, Pruzinsky, & DePree, 1983). Effective emotion regulation is central to clients’ functioning across a broad range of life activities, including work, parenting, and social functioning (Koole, 2009). Poor emotion regulation, on the other hand, is characteristic of several mental health conditions including PTSD, depression, and borderline personality disorder, and is typically associated with high levels of distress (American Psychiatric Association, 2013). As such, difficulties with emotion regulation are often a primary reason for clients choosing to undertake CBT, and emotion regulation processes are often a key focus of therapeutic interventions.

Emotion regulation processes are key factors in the intensity and duration of clients’ emotional experiences, which are central targets in CBT. Intense emotional experiences can

influence behaviors, thoughts, and future emotional experiences. In the context of panic disorder, for example, intense anxiety may prompt a client to avoid activities which are considered likely to lead to panic attacks (behavior change), lead to catastrophic thinking such as, “I’m going to die” (changes in thinking), as well as resulting in escalation of the emotional experience after it has first been noticed (changes in emotion). Thus, understanding the mechanisms by which clients influence the intensity and duration of their own emotional experiences is critical to making sense of impairments in functioning.

Culture has been shown to shape which strategies individuals prefer to use to self-regulate their emotions (Ford & Mauss, 2015). Specifically, individuals are more likely to employ emotion regulation strategies that are encouraged or approved by their cultural group (Matsumoto, Nakagawa, & Yoo, 2008). This means that individuals’ thoughts, beliefs and emotions about various emotion regulation strategies are shaped by the values of their culture, as well as social norms and expectations.

A dominant cultural norm relating to emotion regulation is the belief that suppression of emotions is unhealthy, which is held across most individualistic cultures (Ford & Mauss, 2015). As such, a therapist advising their client to suppress distressing emotions is unlikely to be well-received in Western contexts. However, cross-cultural research has increasingly identified that suppression is not necessarily associated with maladaptive psychological and social functioning in interdependent cultures, and indeed may even be beneficial (Butler, Lee, & Gross, 2007; Ford & Mauss, 2015; Hu et al., 2014). Similar findings have been demonstrated with respect to rumination (e.g., Jose & Schurer, 2010; Grossmann & Kross, 2010). Specifically, those from interdependent cultures tend to report higher levels of rumination than those from independent cultures (Maxwell, Sukhodolsky, Chow, & Wong, 2005) and rumination is associated with less distress for those from interdependent cultures (Grossmann & Kross, 2010). Further, theoretical models suggest that beliefs about worry

may differentially influence the use of this strategy (Prados, 2011). Individuals with positive beliefs about worry may strategically use worry to manage distress (Dugas, Gagnon, Ladouceur, & Freeston, 1998; Wells, 1995). Collectivistic cultures tend to be future-oriented and focus on the avoidance of harm, while individualistic cultures tend to be present-oriented and focus on the attainment of positive outcomes (Schwartz & Melech, 2000). Given that many collectivistic cultures strongly endorse being prepared for the future, individuals within these cultures may be more likely to view worry as a typical and acceptable behavior rather than a symptom of being overwhelmed or stressed. Recently, Nagulendran and Jobson (2019) provided support for cultural differences in emotion regulation in PTSD. As expected, Caucasian Australians with PTSD reported greater worry, expressive suppression, thought suppression, rumination, experiential avoidance, and general emotion dysregulation than Caucasian Australians without PTSD. However, worry, expressive suppression, thought suppression and general emotion dysregulation did not differentiate between East Asian Australians with and without PTSD. It is therefore important to consider clients' cultural contexts when assessing their emotion regulation skills, as well as when considering potential treatment options. Processes generally deemed maladaptive may indeed be useful for some clients.

Beyond frames of reference for specific emotion regulation strategies, cultures often differ in their beliefs about the expression and experiencing of certain emotions. Given the influence of dialectical philosophies in Asian cultures (Bagozzi, Wong, & Yi, 1999; de Vaus, Hornsey, Kuppens, & Bastian., 2017), members of Asian cultures tend to be accepting of negative emotions (Bagozzi, et al., 1999; De Vaus et al., 2017), whilst members of Western cultures tend to prioritize positive emotions when compared to those from East Asian cultures (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Kuppens, Realo, & Diener, 2008; Mesquita & Karasawa, 2002). Key principles of dialectical thinking include expectation of

change, acceptance of contradiction, and belief in the interconnectedness of the self with one's environment. de Vaus et al. (2017) argue that these concepts, when applied to negative emotions, may explain why there appears to be a weaker association between negative emotion and affective disorders in Eastern populations relative to Western populations. When applied to negative emotions, these principles suggest that: a) emotions are likely to change over time, meaning that negative emotions are expected to be temporary, b) positive and negative emotions can co-occur, meaning that the experience of negative emotions does not preclude the experience of positive emotions, and c) emotions are in part caused by one's context, leading to an increase in self-distancing when responding to emotions (de Vaus et al., 2017). These cultural beliefs result in negative emotions being potentially less threatening to Eastern individuals' sense of wellbeing.

In sum, beliefs about emotions influence clients' beliefs regarding effective emotion regulation, including the degree of negative emotionality that is tolerable, and as such should be considered when working with clients who report impairment resulting from poor emotion regulation. It is therefore important for clinicians to develop an understanding of a client's expectations regarding emotion, alongside their community's norms and expectations, in order to assess and treat clients appropriately.

#### **5.4. Case Conceptualization and Cognitive Behavior Therapy**

To this point, the chapter has provided a discussion of theoretical concepts and principles embedded in CBTs. We have discussed aspects of the theory of psychopathology, and in particular, the central beliefs that lead an individual to understand their "self" in a cultural context. There has also been attention to the cognitive attributes of the individual (especially autobiographical memory) in determining capacity for the development of cognitive and emotional skills that result in important functional changes and enhanced quality of life. The CBT case formulation can be considered a framework that the therapist

uses to understand the client's experience in the context of these theoretical concepts and principles. Starting from the initial point of assessment, the case formulation is an evolving hypothesis that both informs, and is informed by the treatment.

CBT case conceptualization (also known as case formulation, or cognitive case conceptualization, see Beck, 2011) may be differentiated from diagnostic formulation or basic problem formulation (i.e., identification of problems, precipitants, perpetuating, predisposing, and protective factors) by its theoretical grounding. That is, CBT case conceptualization positions a key role for the development of central (or core) beliefs about the self, others/ the world, and the future in understanding an individual's distress.

There are also a range of CBT case conceptualization formats, some that focus exclusively on a problem list (i.e., Persons, 2012) and others that draw on the collaborative nature of CBT and emphasize client strengths (i.e., Kuyken, Padesky, & Dudley, 2009). The evidence basis for CBT case conceptualization is still in its early stages of development (see review in Easden & Kazantzis, 2018), and consequently, no one format can be considered to be more or less effective than another. We advocate for case conceptualization methods that are comprehensive and take all of the above into account. In addition, we view the role of family interaction and early relationship experiences as being essential for making sense of the client's present-day difficulties, as well as in making important decisions about how to adapt the client's relationship with their therapist (see Kazantzis, Dattilio, & Dobson, 2017).

Given the theory, it would be reasonable to expect that a client's core beliefs about self and others to lead them to develop a specific style of interpersonal interaction. It would be normative for the client's predominant style of interaction to be present in the relationship with the therapist. For example, a 21-year-old Vietnamese woman (Linh) who had been raised as the only child in a family, developed a self-concept of being "*special*" and that "*others were not as smart as me.*" These beliefs had been instilled and persistently reinforced

by her parents, so it made sense that Linh had rather grandiose career aspirations and had difficulty relating with co-workers and superiors in the workplace. These difficulties were most clearly apparent in her persistent failure to meet workplace requirements, ignoring requests to follow appropriate policy and procedures, and in being discourteous to her direct line managers (i.e., exhibiting a persistently dismissive interpersonal style characterized by frequently interrupting others). Linh presented for CBT following a referral from her family doctor, who had suggested that Linh's symptoms were indicative of major depressive disorder. On initial presentation, Linh's fleeting thoughts of suicide were increasing in duration and intensity, though she was not imminent risk. Figure 2 shows a sequence of thoughts, emotions, behaviors that also incorporate Linh's cultural values.

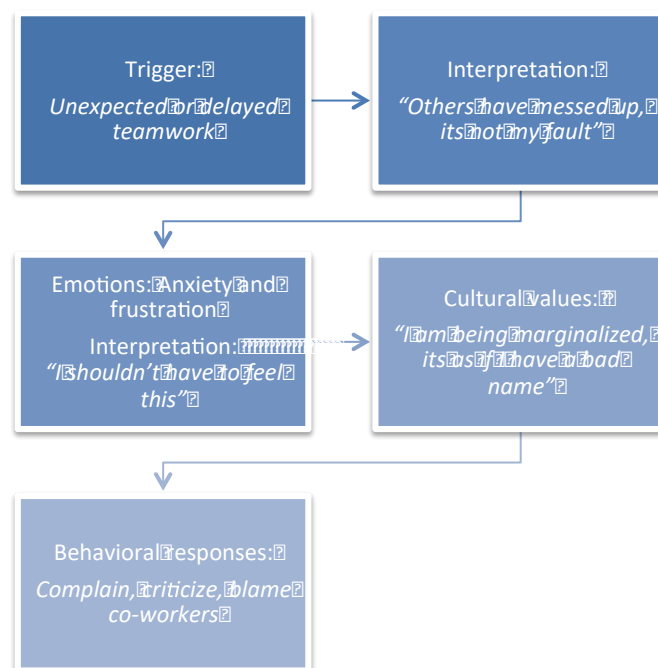


Figure 2. An example problem situation for Linh

In therapy, it was not until Linh experienced limit setting from her therapist that these issues clearly emerged (e.g., being declined the opportunity to park in disabled parking spaces because she was running late to therapy sessions, having the therapist gently end sessions on time, and having the therapist restate the skill-focused nature of CBT in the context of clear communicating expectations about meaningful engagement with between

session work [i.e., homework]). Linh's therapist was therefore socializing Linh into a different relationship than what she had come to believe she was entitled to, and as a result, Linh was initially angry and made a formal complaint about her therapist. That is, Linh called the clinic manager and said "*how dare she ask me to do things between sessions – she should help me – that's why I'm paying for these sessions!*"

Over time, Linh's was able to gain insight, and central to this, was clarification on culturally and societally based beliefs. For example, Linh had developed a view that "*Australians were lazy and stupid people*" and at the same time, "*things shouldn't be difficult for me at work, and if they are, it most likely means other people are doing something wrong or are not recognizing my skills and capabilities.*" It was especially helpful for Linh to disentangle her family's adoption of the traditional Vietnamese value of having a good name from the difficulties she was experiencing at work. That is, through the filter of three prominent schema (i.e., entitlement, unrelenting standards, and emotion inhibition), Linh placed special meaning on her experience of emotions, and interpreted her experience of distress as evidence of poor performance in the workplace. Linh interpreted her frustration as an indication of things not going well (i.e., an emotion regulation deficit, and specific emotional appraisal) and as evidence that she was being marginalized. In addition, Linh associated frustration as a sign that her coworkers were treating her as having a bad name. Figure 3 shows central features of the formulation for Linh.



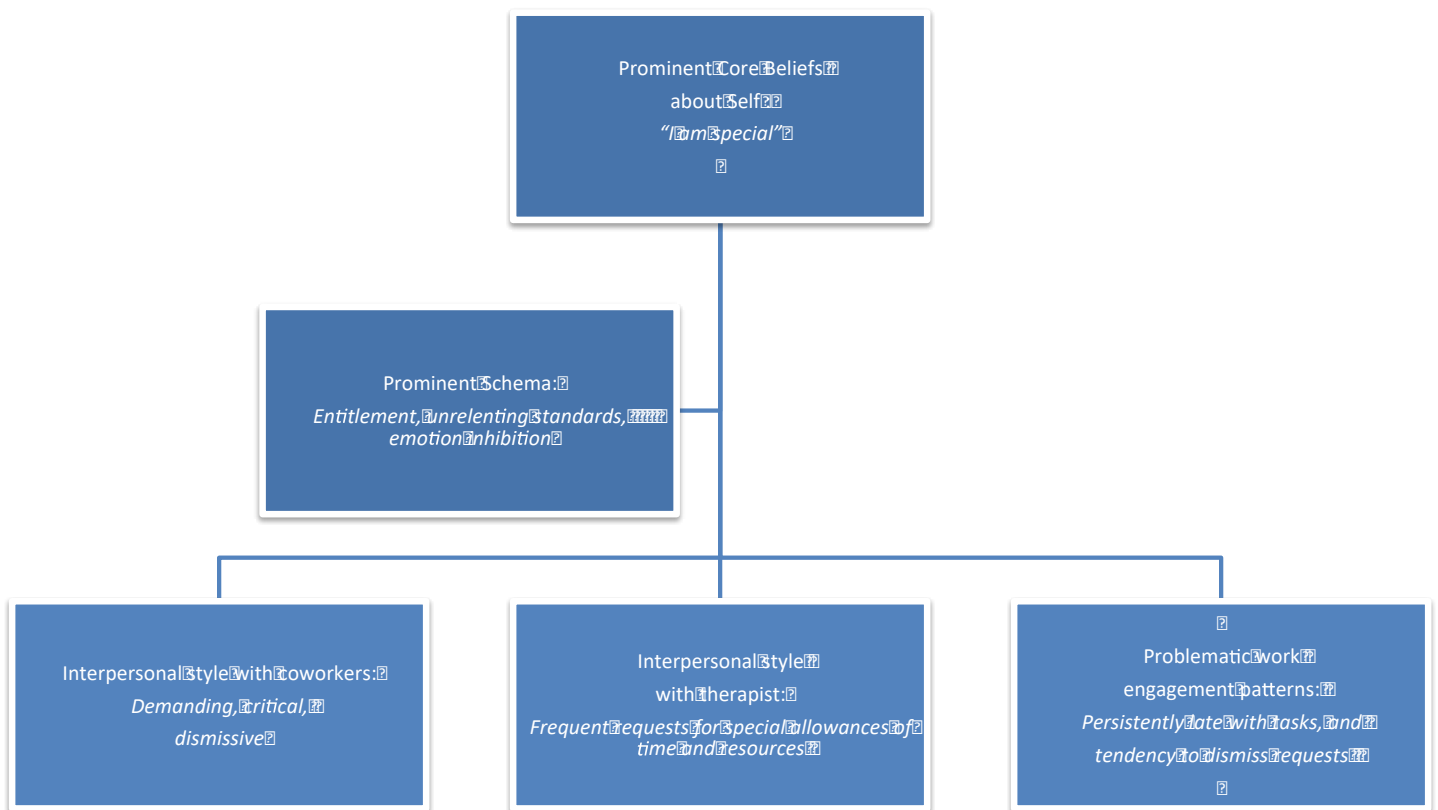


Figure 3. *Prominent core beliefs, schema, and interpersonal style in the case of Linh*

Understanding this pattern enabled Linh to give workplace relationships “*the benefit of the doubt.*” She was also willing to experiment with enhancing her tolerance for frustration when working on team projects and with showing patience and respect towards her co-workers. Through this experimentation, Linh reported feeling more fulfilled as it led to a more harmonious workplace, a reduced sense of being “marginalized”, and the ability to have workplace relations that were more in keeping with her family’s other culturally adopted value of “respect”. As a result, Linh reported being “more myself” and experienced significant reductions in her symptoms of depression through her therapy.

This brief example illustrates the value of attending to culturally specific beliefs in supporting a client within CBT. In Linh’s case, a respectful discussion of culturally and family determined beliefs and values led to a far greater adaptive functioning – and in

particular a new belief about respect, namely that “*respect is something I have to earn, and is not something I should automatically expect from people.*” Here, the clinician was curious and open to the client’s experience, and asked Linh to make connections between her core beliefs (which were positioned as ideas to be evaluated) as distinct from her familial and cultural values (which were positioned as being more central to her sense of self, and not to be a focus of intervention). By recognizing her emotion regulation deficits, and in particular, a difficulty in differentiating the physiological sensations of anxiety from frustration, and rehearsed pattern of attempting to suppress her emotions (i.e., emotion inhibition schema) Linh was able to identify that her emotions were the result of her appraisal (i.e., rather than a result of purely external/ environmental factors).

### **5.5 Detailed Case Study and Critical Reflection Questions**

At this point in the chapter, we invite you to consider the following case.

Client Yu presented as a 60-year-old retired Chinese female. Yu had been living in Australia for 15 years and strongly identified as Chinese Australian (reporting strong links with her Chinese community and church). Yu had regularly engaged with healthcare services following a type 1 diabetes mellitus diagnosis acquired after a pancreatic injury in her early 30s. At the time of assessment, she reported living in Sydney with her husband and her 43-year-old daughter, Kim. She was referred for CBT assessment and treatment by her endocrinologist after reporting high levels of persistent anxiety and a sense of never being able to “relax”. Yu’s endocrinologist reported that Yu’s diabetes was well-managed.

At her first session, Yu brought in a folder containing graphs of all of her daily blood sugar readings for the previous 6 months. She stated that she had an entire bookcase of such folders and that she had only ever missed two doctor’s appointments since her diagnosis. This was a point of pride for Yu, who explained that she had only missed these appointments due to a hypoglycemic episode and her car breaking down. Yu reported frequently worrying

about the potential of developing complications. She stated that this was her primary motivation for closely monitoring her blood sugar.

During assessment, Yu was not overly expressive of her emotions and reported that it was normal to avoid emotions and not display them in public. She reported ongoing interpersonal difficulties at her volunteer position at a local op shop. She stated that conflicts often arose around food preparation for communal volunteer lunches, as she was distressed by “unsanitary” handling of food by other volunteers. Yu also noted that her frequent blood sugar monitoring was occasionally disruptive at volunteering as she would feel extremely anxious if she had to delay her routine checks for any reason, such as being in the middle of serving a customer. She noted that she did not want to embarrass other people, wanted to do what is expected of her and did not want to “let the owners of the op shop down”. She stated that her goal for coming to therapy was to learn to be “less anxious”.

Yu also spoke at length regarding her fear that her daughter may never get married. Yu reported that her identity was very linked with being a wife and a mother. She reported some level of self-blame regarding her daughter’s marital status, stating that it may have been easier for her daughter to find a partner if they had not immigrated. She further expressed some regret that she had not had more than one child. However, she also commented that she had learned to adjust to the current situation and believed this was an appropriate response rather than trying to take control and change the situation.

### **Questions**

- 1.** How would the information presented in this chapter assist a clinician in modifying their assessment sessions with Yu? What additional questions might a clinician ask to develop a fuller picture of this client?
- 2.** How would the information presented in this chapter inform a clinician’s case conceptualization of this client?

3. How would the information presented in this chapter inform a clinician's treatment plan for this client?

### **5.6 Implications for Culturally Sensitive Practice, Training, Research and Policy**

The advances in CBTs, as evidenced-based first-line treatment approaches for psychological conditions, have been impressive. These advances have, and continue to be, informed by empirical work from a range of research areas, including developmental psychology, cognitive psychology, emotion, personality, social psychology, behaviorism – a list that is by no means exhaustive. However, one area of literature that has been accelerating in parallel with CBTs developments, but is less commonly considered, is cross-cultural psychology. The integration of cross-cultural understandings with CBT practice has the potential to assist clinicians in developing informed, culturally-appropriate, evidence-based case conceptualizations and treatment plans. Second, as there are significant challenges in designing evidence-based, cross-cultural modifications to established treatments it is important that clinicians are aware of the limitations of modifying CBTs for culturally diverse clients. Third, as culture is constantly changing (Marsella & Yamada, 2007), culturally sensitive practice must be always evolving to remain relevant. Cultural competency should be an on-going learning objective for clinicians. Finally, it important for clinicians to acknowledge that it is difficult to always have access to current, evidence-based, comprehensive guidelines for cross-cultural modification of CBTs for clients from every cultural background. Instead, we propose that a basic understanding of cross-cultural research, combined with the skills of individual case conceptualization, can facilitate the development of culturally-informed hypotheses. This knowledge and skills may assist in expediting the process of developing comprehensive case conceptualizations of culturally diverse clients, provided that they are used with appropriate caution.

In terms of training, it is important that trainees are provided with an overview of the prominent ways in which culture can influence emotion, cognitive processing and interpersonal relations. Second, trainees need to realize that significant variation exists also within cultures, thereby, ensuring that conceptualizations are not merely based on predefined ideas about certain cultural groups. For instance, cultural values among China's metropolitan population are likely to be vastly different to values in China's rural population, which are again likely to differ to the values of Chinese immigrants living in Western cultural contexts. Third, it is important that trainees reflect on the eurocentricity of CBT and on their own personal and cultural beliefs, which all have the potential to influence client assessment, understanding and treatment. Fourth, trainees need a strong foundation in CBT theory and practice as this will allow them to stay true to the notions of CBTs whilst making cultural modifications. Finally, trainees need to gain experience working with culturally diverse clients while under supervision, to ensure on-going cultural competency.

There is an on-going need for research to investigate how culture influences the processes implicated in the development and maintenance of psychological disorders, as such findings often provide targets for CBT. There is also a research need for clinical trials that focus on culturally diverse groups, and trials examining the efficacy of culturally-modified CBT. This area of research is emerging with the work of clinical researchers, such as Devon Hinton (e.g., Otto & Hinton, 2006; Jalal, Samir, & Hinton, 2017), and in areas such as Narrative Exposure Therapy (e.g., Robjant & Fazel, 2010; Mørkved et al., 2014). Third, greater research is needed regarding the acceptability and feasibility of CBT for those from culturally and linguistically diverse communities. This research area needs to include cultural and religious leaders, service users and key stakeholders from these communities. This is central as research indicates that these groups are less likely to engage in psychological treatments (McGuire & Miranda, 2008). Fourth, research findings need to be readily

translated into clinical practice, to ensure clinicians have the most current evidence-based information to guide their practice. Finally, at present, clinical guidelines (e.g., National Practice Standards for the Mental Health Workforce, 2013; National Institute of Clinical Excellence Guidelines, 2018; International Society for Traumatic Stress Guidelines, 2019) suggest treatment be culturally modified, culturally appropriate, and culturally sensitive. Research is needed to empirically guide such policy statements to ensure clinicians and services provide evidence-based CBT interventions to clients from culturally diverse backgrounds.

### **5.7 Conclusion**

In summary, the feature of collaborative-empiricism lends CBTs to modification across a wide range of clients, include culturally diverse clients. Self-construal, appraisals, memory, and emotion regulation have all been empirically demonstrated to vary cross-culturally, with significant implications for clinical practice. However, it is important to remember that regardless of the extent of a clinician's knowledge of other cultural groups, clients remain our most important source of information regarding their cultural lives. Combined with an awareness of our limitations as a non-member of a cultural group, genuine curiosity, humility and warmth are among our best tools to work alongside culturally diverse clients.

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## **Chapter 6: General Discussion**

### **6.1 Overall Aims of the Thesis**

Considerable research has illustrated the importance of emotion regulation in the development, maintenance, and treatment of PTSD. Emerging cross-cultural research indicates that culture shapes individual preferences for emotion regulation strategies, as well as the outcomes associated with use of these strategies. Despite significant advances in these research areas, these two bodies of literature have not been integrated. Thus, there is a significant gap in the literature. This project, therefore, aimed to respond to this identified gap by investigating culture and emotion regulation in PTSD.

The specific aims of this research were to 1) review the current available literature on PTSD, emotion regulation, and cross-cultural variance in emotion regulation, 2) investigate whether cultural differences in expressive suppression had differential implications for psychological distress, physiological responses, and the development of intrusive memories in a healthy sample, 3) explore the relationships between culture and key emotion regulation strategies implicated in PTSD; namely, expressive suppression, thought suppression, rumination, worry, experiential avoidance, and reappraisal, and 4) highlight key components of CBT that may need modification when structuring culturally-sensitive treatment. In order to meet these objectives a literature review (Aim 1), a quasi-experimental cross-sectional study (Aim 2; Paper 1), a correlational cross-sectional study (Aim 3; Paper 2), and book chapter (Aim 4; Paper 3) were completed. The findings of the literature review and Paper 2 informed the content of the book chapter. This final chapter will integrate the key findings of the thesis, discuss theoretical and clinical implications of these findings, evaluate the strengths and limitations of the research, and propose directions for future research.

## 6.2 Overview of Findings

Paper 1 aimed to assess psychological distress, physiological responding (electrodermal activity and heart rate variability), and the development of intrusions in healthy individuals from East Asian Australian or Caucasian Australian cultural backgrounds following the viewing of a distressing film. Participants were randomly assigned to either a group that received instructions to suppress their emotions whilst watching the film or a control group that received no instructions regarding emotion management. This facilitated comparison of cross-cultural differences in the outcomes of expressive suppression.

First, it was found that subjective negative affect increased and subjective positive affect decreased for all groups after watching the trauma film. Thus, there was no evidence to indicate that culture, suppression, or their interaction, influenced subjective psychological distress. Second, the East Asian suppression group demonstrated significantly increased parasympathetic responding during the film relative to the East Asian control group, but no such difference was observed between the Caucasian groups. However, no cultural or group differences were found with respect to sympathetic nervous responses. Third, the suppression groups, regardless of cultural background, reported fewer intrusive memories in the 5-minute window immediately after viewing the film compared to the control groups. Finally, whilst intrusions reduced over the seven-day period, we found some evidence to indicate that the Caucasian Australian suppression group started to increase in intrusions towards the end of the week. Additionally, the Caucasian suppression group reported more intrusions than the Caucasian control group on Days 6 and 7. Thus, for the Caucasian suppression group there seemed to be a delayed rebound effect in intrusions over the seven days of monitoring.

The findings of Paper 1 suggested that expressive suppression was associated with positive outcomes for both cultures in terms of short-term intrusion development; specifically, those in the suppression groups reported fewer intrusions in the time

immediately following the film. Second, expressive suppression was associated with some positive physiological responses (i.e., increased parasympathetic nervous activity) for the East Asian participants during the film. In contrast, expressive suppression was not associated with positive physiological responses in the Caucasian group. Third, expressive suppression was associated with poor outcomes (i.e., increased frequency in intrusions towards the end of the week) for Caucasians participants. That is, whilst intrusions reduced over the seven-day period, we found some evidence to indicate that the Caucasian Australian suppression group started to increase in intrusions towards the end of the week. Additionally, the Caucasian suppression group reported more intrusions than the Caucasian control group on Days 6 and 7. Thus, for the Caucasian suppression group there seemed to be a delayed rebound effect in intrusions over the seven days of monitoring

Paper 2 investigated relationships between use of emotion regulation strategies and PTSD in Caucasian Australians and East Asian Australians. It was found that, as expected, Caucasians with PTSD reported significantly greater expressive suppression, thought suppression, rumination, experiential avoidance and worry, and lower levels of reappraisal than Caucasians without PTSD. Second, as predicted, the differences in expressive suppression and worry between East Asians with and without PTSD were less marked than those found between the Caucasian groups. Indeed, expressive suppression and worry did not differentiate between East Asians with and without PTSD. Third, in both cultural groups, those with PTSD reported significantly higher habitual and trauma-specific rumination and experiential avoidance than those without PTSD. Finally, reappraisal, thought suppression, and general emotion dysregulation did not differentiate between East Asians with and without PTSD. In sum, expressive suppression, thought suppression, worry, reappraisal, and general emotion dysregulation differentiated between Caucasians with and without PTSD, but not

East Asians. However, habitual rumination, trauma-specific rumination, and experiential avoidance differentiated between trauma survivors with and without PTSD from both groups.

### **6.3 Integrating Findings with Current Literature**

Paper 1 suggested that while suppression appeared beneficial (i.e., associated with reduced number of intrusions) for both groups in the short-term, the longer-term outcomes of expressive suppression may differ for Caucasian and East Asian Australians. Specifically, expressive suppression may be more detrimental (as indexed by experiencing more intrusions) for Caucasian Australians when compared to East Asian Australians. These findings are consistent with PTSD models (e.g., Ehlers & Clark, 2000) in that some coping strategies (including emotion regulation strategies) are reinforced as a result of being effective in the short term (Ehlers & Clark, 2000). That is, experiencing immediate short-term relief of distress reinforces the use of a strategy, even when there is evidence that the strategy is ineffectual in the long term, as in the case with suppression in Western populations (e.g., Wegner, Erber, & Zanakos, 1993). These findings are also consistent with the assertion that suppression may not necessarily be harmful for those from Eastern cultural backgrounds (Ford & Mauss, 2015). Ford and Mauss (2015) argue that the outcomes of a given emotion regulation strategy depend on whether that strategy is endorsed by the cultural context of the individual. That is, an individual will be more likely to experience positive outcomes if the strategy is normalized and accepted by their culture, but more likely to experience negative outcomes if the strategy is perceived to be detrimental or inadequate. This is because cognitions, emotions and behaviors that are consistent with a culture's values are more often practiced and socially rewarded, thereby, leading to greater well-being (Ford & Mauss, 2015). Compared to Western cultures, Eastern cultures often prioritize interpersonal harmony over distinguishing the self from others (Markus & Kitayama, 2010; Ford & Mauss, 2015). The ability to suppress the communication of negative emotions to others is congruent with these



values, and thus more likely to be accepted (and thus less detrimental) within these cultural groups.

Similarly, in Paper 2 expressive suppression and worry did not significantly differ between East Asians with and without PTSD. Paper 2 also replicated the well-established findings that expressive suppression, thought suppression, worry, experiential avoidance, habitual rumination, and trauma-specific rumination are all positively associated with PTSD in Caucasian individuals (Seligowski et al., 2015). As such, this study provided further support to the hypothesis proposed in cross-cultural literature that emotion regulation strategies may have different outcomes depending on individuals' cultural context (e.g., Butler et al., 2007; Ford & Mauss, 2015; Aldao, 2013). For example, given that East Asian cultures value being prepared for the future (Schwartz & Melech, 2000), East Asian individuals may perceive worry as typical and acceptable, rather than a problematic symptom of being overwhelmed or stressed. Consequently, worry may not be as detrimental for East Asian trauma survivors.

Contrary to previous cross-cultural research conducted in healthy non-clinical populations, intrusive and trauma-specific rumination were both positively associated with PTSD in East Asian trauma survivors. This may be explained by differentiating between the two types of rumination: intrusive rumination and deliberate rumination (Blackburn & Owens, 2016; Taku, Cann, Tedeschi, & Calhoun, 2009). Intrusive rumination is characterized as involuntary, or being triggered by a reminder in the environment, and often focuses on "what if" or "if only" thoughts (Martin & Tesser, 1996; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). In contrast, deliberate rumination involves purposefully choosing to think about past experiences in a non-judgmental manner (Martin & Tesser, 1996; Treynor et al., 2003). Intrusive rumination has been the focus of Western PTSD research (Seligowski et al., 2015), and as such was the variable assessed in Paper 2. However, deliberate rumination is

more consistent with a holistic thinking style (valued in East Asian cultures) and therefore it may this sub-type of rumination (as opposed to intrusive rumination) that is most frequently and adaptively used by East Asians when prompted to ruminate. Thus, the cross-cultural differences observed in previous research may reflect differences in the frequency of habitual use of intrusive versus deliberate rumination, rather than focusing on the different outcomes associated with each process. This hypothesis is consistent with Grossmann and Kross' (2010) finding that self-distancing – a key component of deliberate rumination – mediated cultural differences in the psychological outcomes of rumination.

Contrary to expectations, reappraisal did not differentiate between East Asians with and without PTSD. One of the hallmarks of a holistic thinking style is self-distancing, which involves trying to see a situation from multiple perspectives (de Vaus et al., 2017). As such, although little previous research has explored cross-cultural differences in reappraisal, reappraisal was anticipated to be adaptive for both East Asians and Caucasians. One potential explanation for reappraisal not differentiating between those with and without PTSD from an East Asian cultural background is that the measures of reappraisal used in PTSD research typically approach the concept of reappraisal from a Western perspective. Thus, current reappraisal measures may not be capturing East Asians' reappraisal tendencies. For example, the ERQ frames reappraisal-related items in the context of a desire to change current emotional experience. However, those from East Asian cultures tend to be more accepting of negative emotional experiences and often aim to adapt to current situations (Bagozzi et al., 1999; de Vaus et al., 2017). Therefore, the goal of reappraisal may not be to change current emotional experience but rather to develop a holistic understanding of the traumatic event. As such, prompts phrased as “I control my emotions by...” or “when I want to feel less negative emotion...” may not have been endorsed by East Asians, even if they did engage in the process of reappraisal. This is further supported by the finding that Caucasians without PTSD

reported higher reappraisal than East Asians without PTSD. There is no theoretical reason to expect this cultural difference, and as such, this finding may be accounted for by the ERQ not fully assessing East Asian reappraisal tendencies, leading to lower scores for East Asian participants.

Thought suppression did not differentiate between East Asians with or without PTSD. As no previous research had been conducted exploring cross-cultural differences in thought suppression, this was a novel finding. However, the  $p$ -value appeared to be approaching significance ( $t(35) = 1.80, p = .08, d = .63$ ). As such, with a larger sample size, it is likely that East Asians with PTSD would have reported significantly more thought suppression than East Asians without PTSD. It is unclear why this may be the case, and further research with larger sample sizes is required to evaluate the robustness of these findings.

Finally, experiential avoidance was found to be associated with PTSD for both East Asians and Caucasians. This is consistent with Ehlers and Clark's (2000) cognitive theory of PTSD, which argues that meaningful interactions with internal experiences are necessary in order to develop adaptive appraisals about trauma-related stimuli. Therefore, it would be expected that highly negative appraisals remain unchallenged in individuals who are unwilling to be in contact with uncomfortable internal experiences, and that these negative appraisals contribute to increased PTSD symptomatology.

#### **6.4 Culture, Emotion Regulation, and Models of PTSD: Theoretical Implications**

Theories of PTSD give prominence to emotion regulation in the development and maintenance of PTSD (e.g., Ehlers & Clark, 2000). Ehlers and Clark's (2000) cognitive model focuses on the role of overly negative appraisals relating to the trauma and the nature of the trauma memory itself (i.e., vivid with a strongly negative emotional valence, and often poorly contextualized within autobiographical memory). They argue that the sense of a

current threat generated by these processes motivates behavioral and cognitive responses (such as emotion regulation strategies) intended to minimize the threat and accompanying fear (e.g., experiential avoidance). However, such processes often have the unintended effect of preventing cognitive change (e.g., reappraisal), and therefore maintain PTSD. Thus, while emotion regulation plays a central role in the maintenance of PTSD, the findings from the current research provide initial evidence to suggest that there are cultural differences in emotion regulation in PTSD, which are not articulated or fully understood within current theoretical models of PTSD. That is, the mechanisms for regulating emotions may differ between East Asian and Caucasian trauma survivors and this seems to be associated with PTSD.

Gratz and Roemer (2004) describe emotion regulation as a combination of competencies in a) awareness and understanding of emotions, b) acceptance of emotions, c) the ability to control impulsive behaviors and act in line with goals when experiencing negative emotions, and d) the ability to use appropriate emotion regulation strategies to modulate emotional response in order to meet goals. Other prominent models of emotion regulation, such as Gross's process model (1998), often focus primarily on the ability to use emotion regulation strategies to alter emotional response. Core to both conceptualizations of emotion regulation, however, is the idea that emotion regulation can only be understood and evaluated as either adaptive or maladaptive within a specific context (e.g., Cole, Michel, and Teti, 1994, Gratz & Roemer, 2004). Although in treatment sessions clinicians often consider different contexts that an individual encounters throughout their day (e.g., work, home life, and socializing), a larger aspect of context is often overlooked: a client's cultural context.

Culture influences the ways in which emotions are perceived and appraised (de Vaus et al., 2017; Varnum et al., 2010). Eastern cultures tend to be more tolerant of negative emotions because they are not perceived as oppositional to positive emotions (Bagozzi,

Wong, & Yi, 1999; De Vaus et al., 2017), compared to Western cultures. That is, individuals from Eastern cultures may be experiencing two emotional responses in parallel – negative affectivity *and* the continued experience of positive emotions – ultimately resulting in an emotional state that is tolerable for the individual and does not require a resolution of these “competing” experiences. Such a process is inconsistent with many Western models of emotion and PTSD, which feature positive and negative emotions occurring consecutively and needing an ultimate resolution, rather than co-occurring (e.g., Ehlers & Clarke, 2000). Therefore, there is a clear need for the integration of models of PTSD and cross-cultural models of emotion to better understand emotion regulation in non-Western populations. Further, the value that individuals place on either positive or negative emotional experiences is likely to contribute to their overall sense of posttraumatic psychological adjustment, which in turn is likely to influence beliefs about their ability to cope with the consequences of trauma. For example, Eastern cultures tend to be more accepting of negative emotions. Thus, individuals who identify with Eastern cultures may have greater capacity to experience more intense or frequent negative emotions without these emotions prompting beliefs that the individual is unwell, or unable to cope. de Vaus and colleagues (2017) went so far as to hypothesize that this mechanism of increased tolerance of negative emotions may even explain findings of lower prevalence in mental health conditions in Eastern countries. Therefore, cultural norms and individuals’ beliefs about emotions are likely to play a role in psychopathology, and ought to be added to current models of PTSD. Furthermore, the ways in which other cultures respond to trauma and trauma-associated emotion can potentially be used to inform and improve current PTSD treatment approaches for Western clients. For example, many third wave CBTs (e.g., acceptance and commitment therapy, and dialectical behavior therapy) prioritize mindfulness, which is derived from Eastern cultures.

Incorporation of cultural theories into PTSD models may facilitate the understanding of cultural differences in PTSD. This has been achieved in other areas of psychology. For instance, Wong and colleagues (2010) extended the Illness Representation Self-Regulation Model (Leventhal et al., 1984) to develop the Culturally Informed Illness Representation Self-Regulation Model (CIRSRM). To achieve this, they added the key variable of ‘enculturation to Asian values’. This variable refers to extent to which individuals from ethnic minorities retain the norms of their indigenous culture while living among another dominant cultural group. Models of PTSD could be extended to other cultural groups through the inclusion of a similar factor representing enculturation of culturally diverse individuals. This factor would be expected to moderate the relationship between beliefs about the causes and consequences of trauma and the experience of posttraumatic distress or functional impairment. For example, an individual with an Asian cultural background living in a Western country may believe that surviving a natural disaster was out of their control. A highly enculturated individual (i.e., an individual who strongly endorses Asian cultural values) may interpret this belief through the lens of shared humanity, a key component of holistic thinking which suggests that all humans experience events outside of their control and that this is an inevitable part of life which ought to be accepted (de Vaus et al., 2017). On the other hand, acculturation refers to the extent to which an individual has internalized the norms of a dominant culture. A highly acculturated Asian individual living in a Western context may be more likely to interpret these beliefs as reflective of personal weakness or helplessness (i.e., values emphasized in Western cultural groups). Such a perspective would be likely to increase distress and functional impairment.

Similarly, the Cultural Influences on Mental Health model (CIMH; Hwang, Myers, Abe-Kim, & Ting, 2008) proposes that cultural meanings and norms determine the expression, etiology and course of mental illnesses. Current PTSD models generally focus on

the processes that occur within the individual trauma survivor. However, application of the CIMH model to pre-existing models of PTSD may involve the development of additional pathways in these PTSD models to also reflect cultural influences on an individual (see Figure 4). For example, expressive suppression of negative emotions is more common in Asian cultures. A model that articulates “macro” level influences on a trauma survivor would allow recognition of these factors, which include cultural norms that discourage open displays of emotion distress and stigmatization of mental illness. They would also attend to the “micro” level factors within the individual, such as a belief that a trauma survivor cannot cope with the intensity of the emotion. This combined perspective of “micro” and “macro” factors influencing emotion regulation may be considered an extension of Maercker and Horn’s (2013) socio-interpersonal perspective on PTSD, which considers the influence of interpersonal processes and environment on the development and maintenance of PTSD.

Ultimately, acknowledging the role of culture in shaping a trauma survivor’s beliefs around emotions, acceptable behaviors, and their own wellbeing seems imperative to directing the cognitive work required for recovery

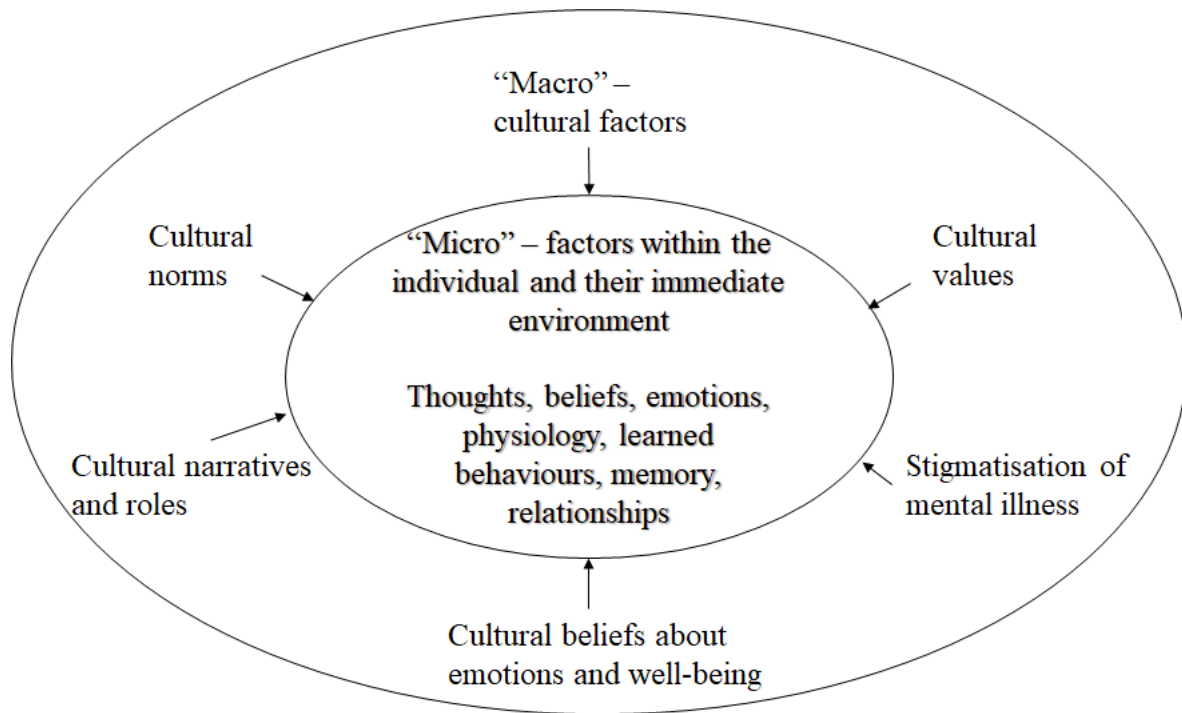


Figure 4. Macro and micro factors influencing emotion regulation in PTSD

### 6.5 Clinical Implications

The National Practice Standards for the Mental Health Workforce (2013), the National Institute for Health and Care Excellence (NICE) guidelines for PTSD management (2018), and the Australian Psychological Society (APS) Code of Ethics (2007) all require psychologists to provide “culturally appropriate services”. The APS considers this as a requirement under the principle of respect for rights and dignities of people and peoples (APS, 2007), one of the three general ethical principles that underlie the Code of Ethics. Clinicians have an ethical and professional responsibility to provide evidence-based, culturally sensitive treatment. However, the majority of randomized controlled trials (RCTs) for psychological therapies have featured predominantly Caucasian samples, and culture is rarely explored as a variable of interest (Arrindell, 2003). Further, there has been little empirical research investigating the adaptation of evidence-based treatments for specific culturally diverse groups (Lau, 2006). This presents a challenge for clinicians, who are expected to practice with cultural sensitivity, but have little empirical guidance as to what this



looks like within the context of evidence-based treatment. Hwang et al. (2008) note that although mental health professionals acknowledge the importance of culture, they struggle to extrapolate on the mechanisms through which culture makes a difference due to an absence of cross-cultural research aiming to understand these differences.

As an example, a key component of evidence-based treatment for PTSD includes teaching clients to reappraise their traumatic experience (i.e., cognitive restructuring and reappraisal). This is important as it assists trauma survivors in coping with exposure to trauma-related stimuli (i.e., memories, bodily sensations, and physical objects or places) (Frewen & Lanius, 2006). However, Study 2 found that reappraisal did not differentiate between East Asian trauma survivors with and without PTSD. If Western-trained clinicians do not understand how these processes function for East Asian clients, or alternatively, if clinicians are teaching strategies in a way that is ultimately unhelpful, there is an increased risk of clients feeling underprepared or overwhelmed by exposure therapy and potentially dropping out of treatment. Further, high levels of emotional arousal during therapy are also likely to impede clients' abilities to engage with cognitive components of treatment, such as identifying automatic negative thoughts (e.g., through difficulties concentrating), thereby potentially affecting the efficacy of cognitive-focused treatments. It is widely recognized that intense emotion inhibits functioning of the prefrontal cortex, including capacity for higher level cognitive functions, such as decision-making, which are required for cognitive therapy (Kennerly, Kirk, & Westbrook, 2016). In short, clients need to learn effective emotion regulation skills to meaningfully engage in therapy. However, while the findings of the present research suggest that emotion regulation strategies in PTSD may differ for East Asian trauma survivors, the research did not identify protective emotion regulation strategies for these clients. Thus, currently clinicians are often required to first try what has been demonstrated to be effective for Western clients (i.e., known reappraisal strategies), and in

the absence of positive outcomes, rely on a process of trial and error to see what works for these clients. This may potentially result in longer or less effective treatment. Given Eastern culture's endorsement of a dialectical thinking style, it seems likely that reappraisal is an important culturally endorsed component of emotion regulation. However, at this stage it is not known which types of appraisals are important to focus on in treatment, or how the reappraisal process may differ for East Asians.

Further, the findings of Paper 2 suggest that some gold-standard measures of emotion regulation used in PTSD research may not fully capture emotion regulation disruptions in East Asian trauma survivors. Several measures of emotion regulation did not significantly differentiate between East Asians with and without PTSD, even though East Asians with PTSD reported similar levels of impairment and psychological distress to that of Caucasian PTSD sufferers. Thus, if clinicians are relying on these measures, healthy East Asian individuals may be categorized as pathological, despite the effective use of emotion regulation strategies for their context, or unwell individuals may go unnoticed. Further, clinicians may struggle to understand which emotion regulation processes need to be addressed in treatment when assessing East Asians with PTSD.

Regarding the development of novel clinical interventions, the Medical Research Council *Developing and Evaluating Complex Interventions* (MRC, 2006) guidelines and the *Advancing Research Standards for PTSD Interventions: Suggested Approaches for Designing and Evaluating Clinical Trials* (U.S. Department of Veterans Affairs Office of Research and Development, 2008) note that it is best practice to develop interventions systematically using a phased-approach (MRC, 2006). These phases include 1) the development phase, in which the best available evidence is collected, appropriate theory is identified, and processes and outcomes are investigated through empirical studies; 2) the feasibility and piloting phase; 3) evaluation phase; and 4) the implementation phase in which include dissemination,

monitoring, and long-term follow-up (MRC, 2006). Empirical investigation of cross-cultural differences in emotion regulation generates vital Phase 1 process and outcome evidence. Given that emotion regulation is a key process across many types of psychopathology, including PTSD, substance use disorders, and depression, establishing this base of evidence has broad implications for the development of culturally sensitive psychological treatment. Further, in order to inform culturally sensitive treatment, culturally diverse minorities need to be included in RCTs for developing evidence-based treatments, and culture needs to be considered as a factor in the development and efficacy of these treatments. Given that development of novel treatments is a lengthy and complex process, Paper 3 (book chapter) provides a framework for clinicians to use to inform culturally-sensitive hypotheses around emotion regulation while waiting for further empirical evidence and RCTs.

Finally, with respect to guiding clinicians currently working with diverse clients, a broader understanding of some of the basic principles of cross-cultural psychology may facilitate stream-lined hypothesis testing in the absence of empirical clinical research and specific cross-cultural sensitivity guidelines. While waiting for RCT-derived guidelines to be established, an understanding of cultural differences in beliefs about emotions, self-construal, and holistic versus analytical thinking styles can help clinicians to make specific hypotheses about their clients' preference for emotion regulation strategies, as well as the likely outcomes of these strategies based on their cultural context.

## **6.6 Strengths**

The two empirical studies included in this thesis explored novel concepts: a) the influence of expressive suppression on the development on intrusions in healthy, culturally diverse participants, and b) the relationships between emotion regulation strategies and PTSD in trauma survivors of culturally diverse backgrounds (i.e., Caucasian versus East Asian). As

such, both studies provide important first steps in better understanding the cross-cultural influences associated with PTSD.

A significant strength of Study 1 was its measurement of both physiological and subjective reports of emotion. Lewis, Haviland-Jones, and Barrett (2008) note that both of these components are central to the experience of emotion and response to threat. Further, cross-cultural literature has suggested that there are important differences in the ways in which individuals perceive and report their emotions. For example, Eastern individuals tend to be more accepting of negative emotion and therefore may report higher levels of negative emotion on average when compared to Western individuals (de Vaus et al., 2017). Therefore, measurement of physiological variables allows us to compare groups using a relatively objective measure, without the confounding variable of cultural differences in self-report of emotional state. Meanwhile, clinicians are typically required to rely heavily on self-report of emotional intensity and symptoms, and perception of emotion has clear implications for individuals' sense of wellbeing and beliefs about their mental health. By incorporating both physiological and subjective measures of emotion, Paper 1 contributes findings that are relevant for both clinicians and researchers.

Further, Paper 1 utilized the trauma film paradigm and included intrusion monitoring both in the laboratory and in the seven days following exposure to the experimental stimulus. The trauma film paradigm has been recognized as a useful experimental analogue to the development of intrusive memories following exposure to a potentially traumatic experience (Arnaudova & Hagenaaars, 2017; Holmes & Bourne, 2008; James et al., 2016). Previous reviews of the trauma film paradigm have recommended recording intrusion data both in the laboratory and in the days following exposure to the experimental stimulus. Data collection from multiple time points allows researchers to generate intrusion data within a controlled environment (thereby removing confounding variables such as participants forgetting to

record intrusions or recording intrusions retrospectively) as well as more naturalistic data in participants' own environments, which allows for increased ecological validity due to the presence of factors that would be present when trauma survivors are processing memories, such as distractions and other people (James et al., 2016). The quasi-experimental design of this study allowed for moderate inference of causation of the effects of expressive suppression and/or belonging to a specific cultural group.

Paper 2 investigated the relationships between use of emotion regulation strategies and PTSD in trauma survivors with and without PTSD, allowing for some triangulation with Paper 1. This correlational design with trauma survivors and a clinical sample allowed for greater ecological validity than a quasi-experimental paradigm with healthy, non-trauma exposed individuals (Paper 1). Further, emotion regulation strategies were assessed using a range of measures, as recommended by Seligowski, Lee, Bardeen, and Orcutt (2015), who argue that complex processes such as emotion regulation need to be assessed through multiple lenses in order to be best understood.

Paper 2 was conducted in Australia, which is a multicultural country with a significant proportion of individuals and communities identifying as East Asian. As such, the data summarized in Paper 2 has the potential to form the basis for the generation of hypotheses in other multicultural countries, such as the UK and the U.S.A. In an increasingly globalized world, migrants often interact with both the dominant cultural group and other diverse migrants, in an environment which involves continually switching between cultural identities (Ross & Wang, 2010). As such, cross-cultural psychology is increasingly focusing on immigrant populations rather than transnational comparisons (Ross & Wang, 2010). Contributing to the body of data which reflects multiple cultural interactions is likely to be more applicable in future research. Recruitment of individuals with a range of index trauma types also allows for increased generalizability of these findings.

Finally, Paper 3 (book chapter) provides clinicians with a framework to facilitate culturally-informed hypotheses about differences in emotion regulation in the interim before further empirical evidence is generated for cross-cultural adaptations to cognitive behavior therapy (CBT). Providing clinicians with guiding principles for translation of cross-cultural research rather than prescriptive instructions for diverse clients allows clinicians to apply these principles across a range of clinical presentations, rather than being limited to only the situations described in the text. Further, a principles-guided approach is consistent with the Hays' (2001) ADDRESSING framework. This framework indicates that the identity of an individual includes many components, including age and generational influences (A), developmental or acquired disabilities (DD), religion and spiritual orientation (R), ethnicity (E), socioeconomic status (S), sexual orientation (S), indigenous heritage (I), national origin (N), and gender (G). Hayes notes that clients are often members of multiple minority groups and the salience of these group memberships can be hierarchical and fluid across contexts. A principles-guided approach, rather than a prescriptive text, allows clinicians to adapt their hypotheses about diverse clients over time, shifting focus to cultural issues if and when required, rather than enforcing rigid adherence.

### **6.7 Limitations**

The shortcomings of this research are acknowledged. First, the present studies were conducted in Australia, a predominately Western cultural environment. This may result in East Asian participants endorsing Western cultural characteristics to a greater extent than those living in their countries of birth, given potential acculturation. Second, as with all cross-cultural research, language and task understanding must be considered as potential confounding factors. For many East Asian participants, the interviews and psychometric measures were completed in their second language, which may have influenced capacity to communicate complex internal experiences. Third, due to the small sample sizes and

preliminary nature of the present studies, it cannot be assumed that these findings are generalizable to the larger population. Fourth, neither study investigated the regulation of positive emotions, which may function differently to the regulation of negative emotions in the context of PTSD.

Regarding Paper 1 specifically, participants were healthy individuals with no reported current psychopathology. Therefore, the findings cannot be generalized to clinical populations, as exposure to trauma or the development of PTSD is likely to influence the use of specific emotion regulation strategies. For example, individuals experiencing high levels of distress due to ongoing PTSD symptoms may be less likely to have the cognitive capacity to engage in the cognitively demanding activity of suppression. Alternatively, emotional numbing in those with PTSD may influence the use of habitual suppression.

Regarding Paper 2, mechanisms underlying the cross-cultural differences observed cannot be inferred in the absence of measures to assess potential explanatory cultural variables, such as independence, interdependence, and dialectical thinking style. Further, Gross (1998) posited a process model of emotion regulation that emphasizes the timing of a regulation strategy as crucial to its impact and consequences. However, given that Paper 2 was cross-sectional, no inferences can be made as to whether the strategies explored were predisposing or maintaining factors for PTSD.

## **6.8 Future Directions**

Despite these limitations, this research provides an important first step in exploring cross-cultural differences in the use of emotion regulation strategies in PTSD. Further research is required to better understand the mechanisms behind these potential cross-cultural differences. First, potential causative factors to be explored in the measurement of emotion dysregulation in East Asians include the impact of a dialectic thinking style, alignment with independent or interdependent self-construal, and tolerance for negative emotions. For

example, future research may extend upon the present findings through inclusion of the Dialectical Self Scale (Spencer-Rodgers et. al., 2015), a widely used and validated measure of dialecticism, or other measures of self-construal. Future cross-sectional research may consider priming important cultural concepts (using experimental paradigms) as a means of better understanding cross-cultural differences (e.g., Oyserman, & Lee, 2008). Exploring differences in emotion regulation when, for example, individualism or collectivism has been primed in participants could provide an exciting opportunity to examine causal effects. Priming studies could potentially also include priming of negative or positive views of emotions, and the concept that positive and negative emotions can co-occur.

Second, future research should focus on exploring the mechanisms and generalizability of cross-cultural differences in emotion regulation. One important step towards investigating cross-cultural mechanisms of emotion regulation would be to replicate these findings in East Asian countries, which would mitigate some of the confounding factors (e.g., acculturation, language) discussed above. Additionally, further research focused on immigrants would benefit from inclusion of measures of acculturation (e.g., The Acculturation Index; Ward & Rana-Deuba, 1999). Inclusion of such measures would assist in extending current findings to the growing population of Eastern immigrants living in Western cultural contexts. This may include using translated measures of emotion regulation, as well as conducting clinical interviews in participants' native languages. Such an approach may further elucidate the mechanisms of cross-cultural differences in emotion regulation by exploring the influences of country of origin values, compared to host country values.

Third, future research with the trauma film paradigm should consider including positive film footage and negative footage. This was recommended by Arnaudova and Hagenaaers (2017), who suggested that inclusion of positive footage may help to control for effects of arousal. This suggestion is based on the assumption that viewing any film is likely



to increase arousal in participants, irrespective of negative affectivity evoked by film content, relative to baseline physiological recordings. However, it is important that all films used in cross-cultural research include footage relevant to a range of cultural groups and have been assessed for cross-cultural validity. It may also be useful to include an acceptance group in future cross-cultural trauma film research investigating emotion regulation, as in Campbell-Sills, Barlow, Brown, and Hofmann (2006).

Fourth, future longitudinal research should explore which emotion regulation strategies predict PTSD across cultures. Investigating preferred emotion regulation strategies within populations who are likely to experience potentially traumatic events (e.g., culturally diverse first responders) at multiple time points may provide insight regarding the temporal relationship between use of a strategy and the development of PTSD following trauma exposure. If possible, researchers should also aim to assess first responders prior to trauma exposure, for example, at the beginning of training to work in emergency services.

Finally, it must be acknowledged that cultural sensitivity forms only one aspect of providing effective treatment for diverse clients. As noted above, Hays' (2001) ADDRESSING framework includes many components influence the identity of a client. Further empirical work is required to inform how clinicians address the complex interactions between these factors that shape how diverse clients perceive themselves, the world around them, and their emotions.

## **6.9 Conclusion**

In conclusion, this thesis explored cross-cultural differences in emotion regulation, a key process implicated in the development, maintenance and treatment of PTSD. Western conceptualizations of emotion and the self are inherent in current research and treatment, particularly evident in the focus on reduction of negative emotions and maintenance of the self as unique, independent entity. This thesis has proposed that consideration of dominant

beliefs about emotions, thinking style, and self-construal within a cultural group may aid our understanding of emotion regulation in PTSD in East Asian cultures.

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## Appendices

### Appendix 1: Ethical Approval for Study 1



#### Monash University Human Research Ethics Committee

##### Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

**Project Number:** 0502

**Project Title:** Cross-cultural differences in posttraumatic stress disorder with respect to emotion regulation.

**Chief Investigator:** Dr Laura Jobson

**Expiry Date:** 25/11/2021

**Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.**

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is 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 MUHREC.
4. You should notify MUHREC 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 letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MUHREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Thank you for your assistance.

Professor Nip Thomson

Chair, MUHREC

CC: Professor Peter Norton, Ms Amanda Nagulendran

## Appendix 2: Explanatory Statement for Study 1



### Participant Information Sheet

**Cross cultural differences in posttraumatic stress disorder with respect to emotion regulation.**

**Chief Investigator: Dr Laura Jobson**  
 Monash University, School of Medicine, Nursing, and Health Sciences  
 Phone: 03 9905 3945  
 Email: [Laura.Jobson@monash.edu](mailto:Laura.Jobson@monash.edu)

**Co-Investigator: Dr Peter Norton**

**Student Researcher: Ms Amanda Nagulendran**

*We would like to invite you to take part in a research study. Before you decide, we would like to explain why the research is being carried out and what it will involve for you. Please read the following information carefully. Take time to decide whether or not you wish to take part.*

**What is the purpose of the study?**

The aim of this study is to investigate the influence of culture on the processing and remembering of trauma events. We would like to find out if people from different cultures (Asian and Australian) remember trauma scenes differently. The study is being carried out by a doctoral student, Amanda Nagulendran, under the supervision of Dr Laura Jobson and Dr Peter Norton at Monash University.

**Who is being invited to participate?**

We are looking for people who have no psychological health problems; this includes panic attacks, panic disorder, PTSD, major depressive episode, social phobia, psychotic episodes, blood phobia, history of fainting, and no significant experience of a car accident, drowning or surgery. Please note that if you are identified to be at risk of harm from participating, you will be excluded from this study. We are looking for 60 East Asian Australian individuals and 60 Caucasian Australian individuals to participate. Participants must be able to complete tasks in English.

**Do I have to take part?**

No. It is up to you to decide whether or not to take part. Your participation is totally voluntary. After you have read this information, I will ask you to sign a consent form to show that you are happy to take part.

**What will happen if I take part?**

If you agree to take part in the study you will be given the consent form to complete. You will then be given several questionnaires to complete. These assess trauma history, habitual emotion regulation, and mood. At this point you will be presented with instructions regarding how to approach viewing the film and fitted with devices to measure your heart rate and skin conductance. You will then be asked to watch a 10 minute film which shows trauma scenes of road traffic accidents, accidents, the effects of war, drowning and human surgery. Following this you will complete some questions related to the film and be shown how to complete the one-week intrusion diary. That is, we will ask you to record intrusions (memories of the film, or part of the film that appear apparently spontaneously in your mind) for one-week. We will then make another appointment for you to come back and hand in your diary. Session 1 will take 1 hour, session 2 will take 5 minutes, and it will take approximately 5 minutes per day to complete your diary. Participants will be reimbursed \$20 for their time. This will be given to participants at the end of the second appointment.

**Can I stop taking part if I change my mind?**

If you decide to take part in the study you can change your mind about participating and withdraw from the study at any point. If you choose to withdraw from the study you do not have to provide a

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## Appendix 3: Informed Consent Form for Study 1



### PARTICIPANT CONSENT FORM

**Title of the project:**

*CROSS-CULTURAL DIFFERENCES IN POSTTRAUMATIC STRESS DISORDER WITH RESPECT TO EMOTION REGULATION*

**Chief investigator and contact details:**

Dr Laura Jobson

Phone: 03 9905 3945

email: Laura.Jobson@monash.edu

Please initial each box and sign at the bottom if you agree to participate.

1. I have read the Participant Information Sheet which is attached to this form. I understand what my role will be in this research (including watching a film showing trauma), and all my questions have been answered to my satisfaction.

2. I understand that I am free to withdraw from the research for any reason and without prejudice.

3. I have been informed that the confidentiality of the information I provide will be safeguarded.

4. I understand that relevant sections of my data collected during the study may be looked at by individuals from regulatory authorities where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.

5. I understand that I am free to ask any questions at any time before and during the study, and have the contact details of the researcher should I wish to discuss any aspect of the study.

6. I have been provided with a copy of this form and the Participant Information Sheet.

7. I agree to take part in the above research.

Name of Research Participant: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**One copy of this Consent Form is kept by the research participant.**

## Appendix 4: Ethical Approval for Study 2



### Monash University Human Research Ethics Committee

#### Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

**Project Number:** 1209  
**Project Title:** Cross-cultural differences in post-traumatic stress disorder with respect to habitual emotion regulation.  
**Chief Investigator:** Dr Laura Jobson  
**Expiry Date:** 15/12/2021

**Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.**

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is 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 MUHREC.
4. You should notify MUHREC 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 letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MUHREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Thank you for your assistance.

Professor Nip Thomson

Chair, MUHREC

CC: Professor Peter Norton, Ms Amanda Nagulendran



## Appendix 5: Explanatory Statement for Study 2



### Participant Information Sheet

**Cross cultural differences in posttraumatic stress disorder with respect to habitual emotion regulation.**

**Chief Investigator: Dr Laura Jobson**  
 Monash University, School of Medicine, Nursing, and Health Sciences  
 Phone: 03 9905 3945  
 Email: [Laura.Jobson@monash.edu](mailto:Laura.Jobson@monash.edu)

**Co-Investigator: Dr Peter Norton**

**Student Researcher: Ms Amanda Nagulendran** (candidate for the Doctor of Psychology – Clinical Psychology)

*We would like to invite you to take part in a research study. Before you decide, we would like to explain why the research is being carried out and what it will involve for you. Please read the following information carefully. Take time to decide whether or not you wish to take part.*

#### **What is the purpose of the study?**

The aim of this study is to investigate the influence of culture on the processing and remembering of trauma events. We would like to find out if people from different cultures (East Asian and Australian) who have experienced a traumatic event regulate their emotions differently. Emotion regulation strategies are the ways in which individuals modify how they experience and express emotions, such as trying to consider the positive aspects of a difficult situation in order to alleviate feelings of sadness. The study is being carried out by a doctoral student, Amanda Nagulendran, under the supervision of Dr Laura Jobson and Dr Peter Norton at Monash University.

#### **Who is being invited to participate?**

We are looking for people who have experienced a potentially traumatic event, and either have or have not developed posttraumatic stress disorder. We are looking for 40 East Asian individuals and 40 Caucasian Australian individuals to participate in this study. East Asian cultural background is defined as an individual as well as all four biological grandparents being born in an East Asian country. Caucasian cultural background is defined as an individual as well as all four biological grandparents being born in Australia. Participants must be able to complete tasks in English and be over 18 years of age. Please note that individuals with a diagnosis of substance dependence, a history of psychosis, or a brain injury will not be eligible to participate in this study.

#### **Do I have to take part?**

No. It is up to you to decide whether or not to take part. Your participation is totally voluntary. After you have read this information, I will ask you to sign a consent form to show that you are happy to take part.

#### **What will happen if I take part?**

If you agree to take part in the study you will be given the consent form to complete. You will then be asked to complete a questionnaire assessing your trauma history. At this point, you will be interviewed regarding the trauma that you described as the worst for you. This clinical interview will be audio recorded and will include briefly describing the event, as well as providing some details regarding how experiencing this event has affected your wellbeing over the past month. Finally, you will be asked to complete a series of questionnaires assessing habitual emotion regulation and mood. Participants will be reimbursed \$20 for their time. This will be given to participants at the end of the appointment.

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## Appendix 6: Informed Consent Form for Study 2



### CONSENT FORM

**Project: 'Cross-cultural differences in posttraumatic stress disorder with respect to habitual emotion regulation.'**

**Chief Investigator: Dr Laura Jobson**

**Student researcher: Ms Amanda Nagulendran**

I have been asked to take part in the Monash University research project specified above. I have read and understood the Explanatory Statement and I hereby consent to participate in this project.

I consent to the following:	Yes	No
I have read the Participant Information Sheet which is attached to this form. I understand what my role will be in this research (including disclosing some details regarding trauma I have experienced and completing an audio-recorded clinical interview), and all my questions have been answered to my satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I am free to withdraw from the research for any reason and without prejudice.	<input type="checkbox"/>	<input type="checkbox"/>
I have been informed that the confidentiality of the information I provide will be safeguarded.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that relevant sections of my data collected during the study may be looked at by individuals from regulatory authorities, such as the police or child protection agencies, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I am free to ask any questions at any time before and during the study, and have the contact details of the researcher should I wish to discuss any aspect of the study.	<input type="checkbox"/>	<input type="checkbox"/>
I have been provided with a copy of this form and the Participant Information Sheet.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in the above research.	<input type="checkbox"/>	<input type="checkbox"/>

Name of Participant \_\_\_\_\_

Participant Signature \_\_\_\_\_ Date \_\_\_\_\_