

Investigating the Moderating Role of Culture on the Relationship Between Appraisals and Symptoms of Posttraumatic Stress Disorder

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Abstract

Appraisals play a central role in posttraumatic stress disorder (PTSD). Accumulating cross-cultural psychology research has demonstrated that culture affects the way in which individuals appraise an experience. However, there is little empirical work considering the influence of culture on appraisals in PTSD. In this study, we investigated the influence of culture on trauma-related appraisals and PTSD symptoms, with a particular focus on appraisals related to control. Trauma-related appraisals and PTSD symptoms were assessed in European Australian ($n = 71$) and Asian Australian ($n = 73$) adult trauma survivors. The group (European Australian vs. Asian Australian) was found to moderate the relationship between control, responsibility, and agency-focused appraisals (mental defeat, mastery, present control, and self-blame) and PTSD symptoms. Findings suggest that the relationship between these appraisal types and PTSD is influenced by the extent to which an individual emphasizes the independent self-construal. The cross-sectional design prevents causal inferences being drawn from the findings. Implications for culturally informed PTSD models and treatments are discussed.

Keywords

posttraumatic stress disorder, appraisals, culture

Appraisals play a central role in the development and maintenance of posttraumatic stress disorder (PTSD; Ehlers & Clark, 2000). Because they are identifiable and potentially modifiable, appraisals continue to provide an important target in the treatment of PTSD (Resick, 2001). Although an impressive body of literature now exists demonstrating the importance of appraisals in PTSD, there remains a significant gap in current understanding. Namely, this research has almost exclusively been conducted using Western samples of trauma survivors. It is evident, therefore, that the investigation of these same phenomena in those from non-Western cultural contexts lags substantially behind. This is of significant concern given that PTSD is evident across most cultures (Foa, Keane, Friedman, & Cohen, 2008). Consequently, little is known about the etiology, maintenance, and treatment of PTSD in trauma survivors from non-Western cultural groups (Foa et al., 2008). Moreover, transcultural research indicates that evidence-based research with samples from Western societies is not always directly applicable to non-Western populations (Kirmayer, 2012; Whitley,

Rousseau, Carpenter, Song, & Kirmayer, 2011). Nevertheless, PTSD treatment models and methods are increasingly applied to diverse cultural populations (Yeomans & Forman, 2009). It is therefore imperative that research investigates how culture influences appraisals in PTSD.

PTSD and Appraisals

Prominent PTSD models stress the role of appraisals. The cognitive model of PTSD proposed by Ehlers and Clark (2000) emphasizes that appraisals of trauma and/or its sequelae contribute to the development and maintenance of PTSD. Likewise, the dual representation theory (Brewin & Burgess, 2014) and schematic, propositional, analogue, and associative representational systems model (Dalgleish, 2004) highlight that trauma

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experiences can be potentially problematic because they are often inconsistent with the trauma survivor's previous beliefs and assumptions, resulting in maladaptive appraisals about the world and self. Supporting these theoretical assertions, research has established that maladaptive appraisals, such as mental defeat (i.e., the perceived loss of all autonomy and control during the trauma), negative beliefs about the self and world, appraisals of trauma sequelae (e.g., negative appraisals of symptoms, permanent change), maladaptive control strategies, and posttrauma rumination (i.e., rumination about the trauma and its consequences) are associated with PTSD (Bryant & Guthrie, 2007; Dekel, Peleg, & Solomon, 2013; Dunmore, Clark, & Ehlers, 2001; Ehlers, Maercker, & Boos, 2000; Kleim, Ehlers, & Glucksman, 2007). Moreover, there is strong evidence demonstrating that targeting maladaptive appraisals in treatment reduces PTSD symptoms (Duffy, Gillespie, & Clark, 2007; Holliday, Link-Malcolm, Morris, & Surís, 2014; Kleim et al., 2013; Zalta et al., 2014).

Appraisals that relate to perceived control have been found to play a fundamental role in PTSD (Foa, Zinbarg, & Rothbaum, 1992; Ullman & Peter-Hagene, 2014). The temporal model of control differentiates between perceived control of the past (i.e., perceived control over the occurrence of the trauma event), present (i.e., perceived control over current aspects of the event, such as current symptoms), and future (i.e., perceived control over the trauma event occurring again; Frazier, Berman, & Steward, 2001). This model posits that it is attributions of present control that are particularly associated with PTSD (see Frazier et al., 2001; Frazier, 2003). Specifically, appraisals related to control over current circumstances, current aspects of a stressor (and one's reactions to it), the recovery process, and current symptoms tend to be associated with posttrauma adjustment (De Vries, Soetekouw, Van Der Meer, & Bleijenbergh, 2001; Frazier, Keenan, Anders, Perera, Shallcross, & Hintz, 2011; Frazier, Steward, & Mortensen, 2004; Palyo & Beck, 2005). Frazier et al. (2011) claim that present control may be particularly important and adaptive because it focuses a trauma survivor's resources on what can be controlled in an often uncontrollable situation, and appraisals of present control are likely to reflect more general appraisals about an individual's ability to control significant outcomes.

Culture and Appraisals

Cultural differences in self-construal are the most researched and theoretically considered area in cross-cultural psychology. The self-construal inherent in Western cultures, and hence considered in current models of PTSD, is the independent self. This aspect of self emphasizes uniqueness, personal control, responsibility

over one's actions, and pursuing personal goals (Markus & Kitayama, 2010). As a result, well-being is determined by individual achievement, mastery, agency, and self-esteem. In many collectivistic cultures, such as those in Asia, the emphasis is on interdependence, whereby the self is characterized by a fundamental connectedness with others, a motivation to fit in and fulfill social obligations (Markus & Kitayama, 2010). Consequently, well-being is defined in terms of developing and maintaining close harmonious relationships (Markus & Kitayama, 2010).

Within cross-cultural literature, there is considerable support for the notion that these differences in self-concept lead to differences in how individuals appraise life experiences (Mesquita & Walker, 2003). Specifically, cross-cultural differences are apparent in appraisals of personal control and agency (i.e., the degree to which an individual attributes responsibility for and control over an event; Mesquita & Walker, 2003). Those from independent cultures tend to appraise success through agency, a sense of personal control, and personal accomplishment. In Asian cultures, personal agency and control have limited applicability (Imada & Ellsworth, 2011; Markus & Kitayama, 2010; Mesquita & Walker, 2003). Perceived control is considered fundamental to the independent self-construal given the emphasis on agency, control, and individual mastery. In contrast, interdependence of self is less concerned about perceived control (Mesquita & Walker, 2003).

Conceptual frameworks (e.g., Hwang, Myers, Abe-Kim, & Ting, 2008; Jobson, 2009; Wong, Tran, Kim, Van Horn Kerne, & Calfa, 2010) and empirical findings (e.g., Chang, Jetten, Cruwys, & Haslam, 2016) indicate that cultural norms, beliefs, and expectations shape psychological disorders. Thus, a lack of perceived control may be more associated with psychological distress for those from individualistic cultures and associated with the independent self (where control is highly valued) and less detrimental to psychological distress for those from collectivistic cultures (where control is less emphasized). Cheng et al. (2013) considered 40 years of research in their meta-analysis examining the relationship between control and depression and anxiety symptoms among different cultures. They found the association between perceived control and symptoms to be significantly weaker for collectivistic cultures than for individualistic cultures. They attributed these cultural differences to the reduced emphasis on agency in collectivistic cultures.

Culture, Appraisals, and PTSD

Although cross-cultural psychology has provided substantial evidence for culture-specific appraisal tendencies in regard to everyday experiences, only a few studies have considered cultural influences on

appraisals in PTSD. Hinton et al. (2010) conducted influential work investigating culture-related maladaptive cognitions among traumatized refugees. Jobson and O’Kearney (2009) found that, as expected, those from individualistic cultures with PTSD had significantly fewer appraisals of perceived control and greater mental defeat, alienation, and permanent change than those without PTSD. However, appraisals of personal control, mental defeat, and permanent change did not significantly differentiate between those with and without PTSD from collectivistic cultures. These findings suggest that appraisals of autonomy, personal responsibility, and permanent change may have a greater impact on psychological adjustment for survivors from individualistic cultures than for those from collectivistic cultures. More recently, Engelbrecht and Jobson (2014) investigated trauma-related appraisals in European British and Asian British trauma survivors with and without PTSD. As expected, appraisals of personal control differentiated between those with and without PTSD among European British trauma survivors but not Asian British survivors. A limitation of both these studies was, however, that appraisals were not assessed using routinely used, well-validated measures of PTSD-related appraisals.

As far as we are aware, only three studies have investigated trauma-related appraisals using a routinely used, well-validated measure of trauma-related appraisals in PTSD (i.e., Posttraumatic Cognitions Inventory, PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). The findings from these studies are mixed, with some studies finding that these appraisals are associated with PTSD across cultures and other studies finding this relationship only held true in Western samples and not in Asian samples (Berzengi, Berzenji, Kadim, Mustafa, & Jobson, 2017; Engelbrecht & Jobson, 2014; Su & Chen, 2008). Thus, further research in this area is required. Additionally, these studies only considered negative appraisals about the self, the world, and self-blame. The PTSD appraisal research has tended to use a battery of appraisal measures that assess a vast array of maladaptive appraisals (e.g., mental defeat, appraisals of symptoms, permanent change, perceived negative responses of others, maladaptive control strategies, posttrauma rumination; Dunmore et al., 2001; Ehlers et al., 2000; Kleim et al., 2007). To date, a thorough investigation of these appraisal types has not been considered in those from interdependent cultures, and there has been no attempt to characterize how culture (and self-construal) may moderate the relationship between these appraisals and PTSD symptoms. Given that appraisals have significant implications for PTSD and its treatment and culture influence the appraisal of everyday experiences, it is timely that research investigates how culture may

moderate the important relationship between appraisals and PTSD.

Aims and Hypotheses

The aim of this study was to examine the influence of culture on trauma-related appraisals, with a specific focus on appraisals related to perceived control and agency. We used a common procedure in cross-cultural clinical studies, whereby members of an independent (European Australian) and interdependent (Asian Australian) culture completed measures (e.g., Dritschel, Kao, Astell, Neufeind, & Lai, 2011; Grossman & Kross, 2010; Jobson, Moradi, Rahimi-Movaghar, Conway, & Dalgleish, 2014) assessing a wide array of trauma-related appraisals. First, we hypothesized that in both European Australians and Asian Australians trauma-related maladaptive appraisals would be significantly associated with PTSD symptoms (Hypothesis 1). Second, in the instance of appraisals related to control, that is, self-blame (own responsibility for trauma), mastery, perceived control, and mental defeat, we predicted that the group (i.e., Asian Australian, European Australian) would moderate the relationship between appraisals and PTSD symptoms (Hypothesis 2). Specifically, we predicted that although these appraisals would be strongly associated with PTSD symptoms for European Australian trauma survivors, they would be less detrimental to posttraumatic adjustment for trauma survivors from an Asian collectivistic cultural group. Third, we investigated a moderating mediation model in which appraisals would be the independent variable, PTSD symptoms the dependent variable, the group (i.e., Asian Australian, European Australian) would act as a moderator, and independent self-construal would function as a mediator (see Fig. 1). We predicted that independent self-construal would mediate the relationship between control variables and PTSD and that the group would moderate this effect (Hypothesis 3).

Method

Participants

Participants were adult trauma survivors from a European Australian background (identified as having an ancestral European-family background, i.e., all four grandparents of European background; $n = 71$) or Asian background (identified as having an ancestral Asian-family background, i.e., all four grandparents of Asian background; $n = 73$) currently living in Australia. The European Australian group consisted of individuals of Australian (94%) or British/Irish (65%) descent. The Asian Australian group consisted primarily of individuals

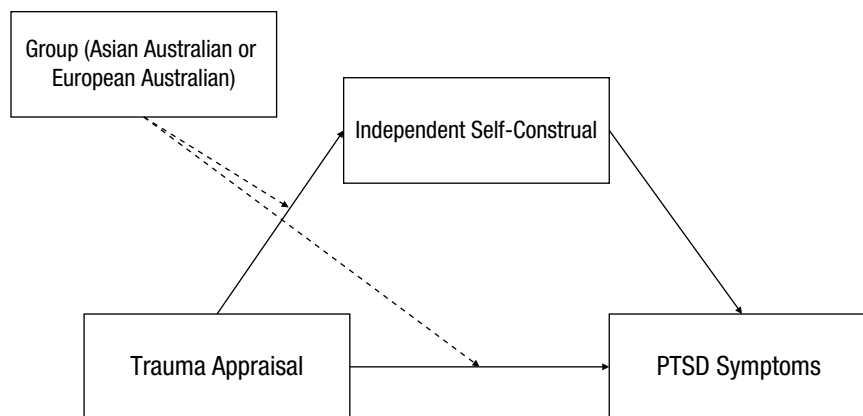


Fig. 1. The conceptual model. Based on the moderated mediated analysis, PROCESS model 8 (Hayes, 2013).

of Chinese (47%), Vietnamese (21%), and Malaysian (18%) descent. Participants were recruited from the general population through advertisements in local newspapers and through online and community cultural and trauma support groups. Exclusion criteria were participants not having experienced a criterion A-type trauma according to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5;* American Psychiatric Association, 2013) or not identifying as European Australian or Asian Australian. Forty-seven participants were excluded on the basis of these criteria (lack of criterion A-type traumatic event: $n = 40$; did not identify as European Australian or Asian descent: $n = 7$).

Measures

Independence/interdependence. The Independent and Interdependent Self Scale (IIS; Lu & Gilmour, 2007) is a 42-item measure of self-concept routinely used to assess interdependent (21 items) and independent (21 items) self-construal. Questions assessing independence focused on beliefs around uniqueness, expressing oneself, promoting one's own goal, and self-reliance. Questions assessing interdependence focused on beliefs around belonging and integration, promoting others' goals, and engaging in appropriate action. Respondents were asked to indicate their agreement with items on 7-point Likert-type rating scales (1 = *strongly disagree*, 7 = *strongly agree*). Responses were summed to represent endorsement of the independent (score range: 21–147) and interdependent (score range: 21–147) self (i.e., each participant has an independent score and interdependent score), with higher scores indicating greater endorsement (Liu & Gilmour, 2007). The measure has satisfactory reliability and validity, that is, face, construct, convergent, and divergent validity, with an established individualism/collectivism scale (Triandis & Gelfand, 1998) across Chinese and British adults (Lu & Gilmour,

2007). In the current study, internal consistency was good for the independent scale (European Australian: Cronbach's $\alpha = .90$; Asian Australian: Cronbach's $\alpha = .87$) and interdependent scale (European Australian: Cronbach's $\alpha = .87$; Asian Australian: Cronbach's $\alpha = .80$).

Trauma experience and PTSD symptoms. The Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997) is a self-report instrument composed of four parts developed to measure PTSD. In the current study, only Parts 1 and 2 were used. Parts 1 and 2 contain trauma screening questions. Part 1 is a trauma checklist, and in Part 2 participants were asked to indicate their most upsetting traumatic event (i.e., their index trauma). The PDS has adequate test-retest reliability and concurrent, convergent, and predictive validity (Foa et al., 2016). The PDS has also been used in previous research with collectivistic populations (e.g., Botero García, 2005; Itoh et al., 2017).

The Posttraumatic Stress Disorder Checklist for *DSM-5* (PCL-5; Weathers et al., 2013) is a 20-item self-report measure that assesses *DSM-5* symptoms of PTSD. The self-report rating scale uses the descriptors *not at all*, *a little bit*, *moderately*, *quite a bit*, and *extremely*. A score of 33 or above is suggested as the cutoff for a provisional diagnosis of PTSD (Weathers et al., 2013). Considerable research indicates that the PCL-5 is a psychometrically sound measure of PTSD symptoms (Bovin et al., 2016). Cronbach's α s for the current study were .88 and .96 for the Asian Australian and European Australian groups, respectively.

Depression. The Hopkins Symptoms Checklist-25 (HSCL-25) is derived from the 90-item symptom checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) and is a widely used screening measure. The HSCL-25 includes two subscales assessing symptoms of anxiety (10 items) and depression (15

items), and items are scored on severity scales from 1 (*not at all*) to 4 (*extremely*). In the current study, only the depression subscale, which measures symptoms of depression over the previous 4 weeks, was used. It has demonstrated its usefulness as a screen for depression in various cross-cultural settings (Kaaya, Fawzi, Mbwambo, Lee, Msamanga, & Fawzi, 2002). The HSCL-25 has good psychometric properties and is regularly used in cross-cultural research (e.g., Jobson, 2011). Cronbach's α s for the current study were .80 and .94 for the Asian Australian and European Australian groups, respectively.

Cognitive appraisals.

Self, others, and the world. The PTCI (Foa et al., 1999) is a 33-item inventory assessing appraisals related to trauma using three subscales: appraisals about negative self, negative world, and perceived self-blame regarding the trauma. Many studies have demonstrated that the PTCI correlates significantly with PTSD symptoms (e.g., Cooper, Zoellner, Roy-Byrne, Mavissakalian, & Feeny, 2017; Thompson-Hollands, Jun, & Sloan, 2017; Zuj et al., 2017). The PTCI has demonstrated good reliability and test-retest reliabilities ($\alpha = .80$ to $.86$; Foa et al., 1999). It has good internal consistencies ($\alpha = .86$ to $.97$) and strong correlations with other measures of posttraumatic cognitions (Alliger-Horn et al., 2017). In the current study, internal consistency was excellent (Asian Australian: Cronbach's $\alpha = .96$; European Australian: Cronbach's $\alpha = .98$).

Control. The Perceived Control Over Stressful Events Scale (PCOSES; Frazier et al., 2011) was used to assess the degree to which participants experienced perceived control with regard to their index trauma. The measure consists of 17 items assessing past, present, and future control over an event. The PCOSES was developed according to the temporal model of control to assess these three different aspects of control and to advance understanding of the role of perceived control in adjustment to stressful life events (Frazier et al., 2012). Studies have supported the content validity, factor structure, internal consistency and test-retest reliability, and convergent and discriminant validity of the measure (Frazier et al., 2011). Cronbach's α s for the current study were .78 and .74 for past control, .80 and .82 for present control, and .71 and .71 for both Asian Australian and European Australian groups, respectively.

Mental defeat. Mental defeat was measured using a cognition and behavior questionnaire (Dunmore, Clark, & Ehlers, 2001). This questionnaire assesses the cognitive and behavioral factors suggested to be involved in the onset and maintenance of PTSD (Dunmore et al., 2001). The mental-defeat items assess the extent to which trauma survivors had mentally given up efforts to

retain their sense of being human with a will of their own or had perceived that they had relinquished their autonomy. These questionnaires were developed for previous research in which they were found to be able to distinguish between those with and without PTSD and showed adequate reliability and validity (Dunmore, Clark, & Ehlers, 1999; Dunmore et al., 2001). Cronbach's α s for the current study were .94 and .97 for the Asian Australian and European Australian groups, respectively.

Mastery. The Pearlin Mastery Scale (Pearlin & Schooler, 1978) was used to measure the extent to which an individual regards their life chances as being under their personal control rather than fatalistically ruled. Mastery has been shown to be a protective factor for mental health and well-being during stressful life events (e.g., Pearlin & Schooler, 1978; Pudrovska, Schieman, Pearlin, & Nguyen, 2005). Previous studies have shown the scale to have good reliability ($\alpha = .70$; Pearlin & Schooler, 1978). In the current study, internal consistency was found to be good (Asian Australian: Cronbach's $\alpha = .73$; European Australian: Cronbach's $\alpha = .84$).

Rumination. The rumination subscale of the Responses to Intrusions Questionnaire (RIQ; Clohessy & Ehlers, 1999) was used to assess the degree of rumination about the trauma and its consequences. The rumination subscale comprises eight items (e.g., "I think about why the event happened to me") that are rated on a scale from 0 (*never*) to 3 (*always*). The RIQ was developed from a series of studies examining trauma survivors' responses to intrusive memories; it has been shown to possess good reliability and validity and to significantly and substantially correlate with other rumination measures (Ehring, Frank, & Ehlers, 2008; Murray, Ehlers, & Mayou, 2002; Steil & Ehlers, 2000). Cronbach's α s for the current study were .83 and .92 for the Asian Australian and European Australian groups, respectively.

Appraisal of PTSD symptoms. Appraisals of symptoms were measured using the Appraisal of Sequelae of Assault Scale from the cognition and behavior questionnaires (Dunmore, Clark, & Ehlers, 2001). This scale consists of 24 items assessing participants' negative appraisals of initial posttrauma symptoms. The questionnaire includes appraisals of postassault reactions in general (e.g., "My reactions since the assault mean that I must be losing my mind"), as well as appraisals of specific PTSD symptoms, including intrusions (e.g., "Something terrible will happen if I do not control my thoughts about the event"), avoidance (e.g., "If I avoid things after an event it means I am a coward"), and emotional numbing (e.g., "If I feel numb after the event it means I will never be able to be in touch with the world again"). It also assessed appraisals of subsequent anger (e.g., "Anger will make me go

off the rails”) and guilt (e.g., “If I feel guilty it must mean that I really was to blame for what happened”). The original study produced an α of .84 (Dunmore et al., 2001). Cronbach’s α s for the current study were .91 and .96 for the Asian Australian and European Australian groups, respectively.

Procedure

Ethical approval was obtained from Monash University Ethics Committee. Participants who volunteered for the study were given access to the online questionnaire via a link. Prior to commencing the questionnaire, participants were informed about the research process (i.e., they were told that they would be asked to complete some questionnaires asking about traumatic experiences and their reactions). They were told that all information would be confidentially protected. Participants were then invited to take part in the study and provide informed consent. The questionnaire asked participants to provide demographic details (date of birth, gender, ethnicity, education, country of birth, country of parent’s and grandparent’s birth, length of time living in Australia, relationship status, native language, language spoken at home). Participants were then given the option of responding to a series of questionnaires in relation to their experience of a traumatic event. The questionnaires were presented in the following order: demographics, traumatic experience and PTSD symptoms, cognitive appraisals, and depressive symptoms. All measures were administered in English. Completion of the survey was voluntary, and no compensation was offered for participating.

Data-analysis plan

To examine Hypothesis 1, Pearson product-moment correlations were calculated separately for both European Australians and Asian Australians to explore the strength of the relationships between the appraisal variables and PTSD symptoms. Given the multiple associations, Bonferroni correction ($\alpha = .004$) was applied. When interpreting mean effect sizes, guidelines from Cohen (1992) were used, where an r of at least .10 indicates a small effect size, .30 indicates a medium effect size, and .50 indicates a large effect size. To explore whether the group moderated the relationship between appraisals and PTSD symptoms (Hypothesis 2), a series of hierarchical multiple-regression analyses were conducted. Each explored the role of a particular appraisal type as a predictor (Step 1) of PTSD symptoms and the group as a moderator of the relationship between that appraisal type (i.e., included as an interaction term: Appraisal \times Group) and PTSD symptoms (Step 2; Holmbeck, 1997). Appraisal scores were

mean-centered before constructing the interaction terms to minimize any problems of multicollinearity and to aid the interpretation of the results (Aiken & West, 1991; Holmbeck, 2002). To examine Hypothesis 3, conditional process modeling was used to test for moderated mediation as outlined by Hayes (2017) using PROCESS. Specifically, we investigated the impact of the group as a moderator on the direct effect of appraisals on PTSD symptoms and the indirect effect of appraisals on PTSD symptoms (through independent self-construal).

Results

Group characteristics

The means, standard deviations, and group-difference scores for demographic and trauma-related appraisals for the European Australian and Asian Australian groups are presented in Table 1. The groups did not differ significantly in terms of gender or age. The European Australian group had lived in Australia for a significantly longer period of time than the Asian Australian group. Given that the length of time residing in Australia may have influenced findings, we also conducted the below analyses with length of time in Australia as a covariate. A similar pattern of findings emerged. The groups did not differ significantly in terms of PTSD or depression symptoms. Fifty-five (77%) European Australian participants and 65 (89%) Asian Australian participants scored above the cutoff for a provisional diagnosis of PTSD on the PCL-5 (Weathers et al., 2013). This did not differ between groups and indicated that both groups were experiencing significant posttraumatic distress. As expected, a 2 (group: European Australian, Asian Australian) \times 2 (self-construal independent, interdependent) mixed ANOVA with self-construal as a dependent variable found a significant interaction. Follow-up analyses revealed the European Australian group scored significantly higher on independence and significantly lower on interdependence than the Asian Australian group (see Table 1). For the European Australian group, independence was significantly higher than interdependence, $t(67) = 12.71$, $p = .01$, whereas for the Asian Australian group, interdependence was significantly higher than independence, $t(72) = 12.86$, $p = .01$. As shown in Table 1, in terms of trauma-related appraisals, European Australian and Asian Australians only differed on numbing.

Hypothesis 1: trauma-related appraisals and PTSD symptoms

There were strong correlations between PTSD symptoms and most of the appraisal types (negative self,

Table 1. Descriptive Group-Difference Statistics for Demographic and Trauma-Related Appraisal Variables

Characteristic	European Australian	Asian Australian	Group difference
Demographics			
Age, years	$M = 39.30, SD = 12.48$	$M = 35.01, SD = 12.38$	$t = 2.06$
Gender (female), n	43 (62.3%)	42 (57.5%)	$\chi^2 = 0.34$
Years in Australia	$M = 37.07, SD = 13.45$	$M = 6.42, SD = 6.05$	$t = 17.66^{**}$
Independence ^a	$M = 78.00, SD = 8.67$	$M = 51.16, SD = 11.01$	$t = 16.55^*$
Interdependence ^a	$M = 55.32, SD = 8.60$	$M = 77.51, SD = 7.74$	$t = 16.12^*$
Trauma and PTSD			
Time since trauma, n			$\chi^2 = 3.39$
6 months to 3 years	11	7	
3–5 years	16	24	
> 5 years	41	42	
PDS Index trauma (n) ^b			$\chi^2 = 5.64$
Assault	52	61	
Accident	9	7	
Combat/torture/imprisonment	7	2	
Life-threatening illness	1	1	
Natural disaster	1	0	
PTSD symptoms ^c	$M = 38.83, SD = 17.87$	$M = 39.86, SD = 9.39$	$t = 0.44$
Met PTSD screening cut-off, n	55 (77%)	65 (89%)	$\chi^2 = 2.73$
Depression ^d	$M = 36.59, SD = 9.06$	$M = 35.82, SD = 4.85$	$t = 0.63$
Appraisal type			
Mental defeat ^e	$M = 29.20, SD = 12.18$	$M = 27.45, SD = 8.23$	$t = 1.01$
Negative self ^f	$M = 3.86, SD = 1.23$	$M = 3.73, SD = 0.77$	$t = 0.78$
Negative world ^f	$M = 5.00, SD = 1.24$	$M = 5.00, SD = 0.84$	$t = 0.12$
Self-blame ^f	$M = 4.26, SD = 1.33$	$M = 4.01, SD = 0.93$	$t = 1.28$
Control: past events ^g	$M = 12.29, SD = 2.99$	$M = 11.49, SD = 2.06$	$t = 1.87$
Control: present events ^g	$M = 19.44, SD = 4.36$	$M = 19.38, SD = 3.47$	$t = 0.10$
Control: future events ^g	$M = 11.18, SD = 2.05$	$M = 11.38, SD = 1.52$	$t = 0.61$
Thought suppression ^h	$M = 11.15, SD = 4.11$	$M = 11.28, SD = 2.92$	$t = 0.21$
Rumination ⁱ	$M = 9.80, SD = 4.28$	$M = 9.22, SD = 3.54$	$t = 0.87$
Numbing ^j	$M = 7.29, SD = 3.65$	$M = 5.46, SD = 2.24$	$t = 3.58^*$
Mastery ^k	$M = 17.23, SD = 3.25$	$M = 16.68, SD = 2.34$	$t = 1.14$
Interpretation of symptoms ^l	$M = 39.11, SD = 17.08$	$M = 42.94, SD = 11.16$	$t = 1.58$

Note: PTSD = posttraumatic stress disorder.

^aIndependent and Interdependent Self Scale (Lu & Gilmour, 2007). ^bPosttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). ^cThe PTSD Checklist for DSM-5 (Weathers, Litz, Keane, Palmieri, Marx, & Schnurr, 2013). ^dHopkins Symptoms Checklist–25 (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974). ^eCognition and behavior questionnaire (Dunmore, Clark, & Ehlers, 2001). ^fPosttraumatic Cognitions Inventory (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). ^gPerceived Control Over Stressful Events Scale (Frazier et al., 2011). ^hPerceived Control of Internal States (Pallant, 2000). ⁱResponses to Intrusions Questionnaire (Clohessy & Ehlers, 1999). ^jAppraisal of Sequelae of Assault Scale from the cognition and behavior questionnaires (Dunmore, Clark, & Ehlers, 2001). ^kPearlin Mastery Scale (Pearlin & Schooler, 1978).

* $p < .05$. ** $p < .01$.

negative world, self-blame, thought suppression, and interpretation of symptoms) in both the European Australian and Asian Australian groups (Table 2). Appraisals related to past and future control were only weakly correlated with PTSD symptoms for both the European Australian and Asian Australian groups. Whereas for

the European Australian group there were strong correlations between PTSD symptoms and mental defeat, present control, rumination, numbing, and mastery, for the Asian Australian group moderate associations were observed. Fisher r -to- z transformations revealed a significant difference between European Australian and

Table 2. Pearson Product-Moment Correlations Between Appraisal Type and Posttraumatic Stress Disorder Symptoms and Group-Difference Scores

Appraisal type	European Australian (<i>n</i> = 69)		Asian Australian (<i>n</i> = 71)		<i>Z</i>
	<i>r</i>	95% CI	<i>r</i>	95% CI	
Mental defeat	.68***	[.51, .83]	.43***	[-.20, .72]	2.10*
Negative self	.85***	[.75, .92]	.69***	[.38, .83]	2.33**
Negative world	.80***	[.70, .88]	.78***	[.53, .89]	0.30
Self-blame	.81***	[.67, .91]	.70***	[.43, .84]	1.47
Control: past events	.20	[-.14, .52]	.19	[-.24, .56]	0.06
Control: present events	-.75***	[-.86, -.60]	-.43***	[-.60, -.17]	2.91**
Control: future events	.16	[-.23, .45]	-.13	[-.58, .38]	1.66*
Thought suppression	.66***	[.43, .81]	.55***	[.26, .73]	0.99
Rumination	.64***	[.47, .80]	.45***	[.19, .68]	1.55
Numbing	.66***	[.46, .81]	.42***	[.23, .60]	1.96*
Mastery	-.59***	[-.77, -.36]	-.38***	[-.57, -.13]	1.58*
Interpretation of symptoms	-.69***	[-.89, -.43]	-.64***	[-.79, -.32]	0.51

Note: CI = confidence interval.

* $p < .05$. ** $p < .01$. *** $p < .004$ (Bonferroni-adjusted criterion for significance).

Asian Australians for appraisals related to mental defeat, negative self, present control, future control, numbing, and mastery.

Hypothesis 2: moderating effects of group

A summary of the regression analyses testing the moderating effects of group on the relationship between appraisals and PTSD symptoms is presented in Table S1 in the Supplemental Material available online. As shown in Table S1, regardless of the group, negative self-appraisals ($\beta = 0.78$), negative world appraisals ($\beta = 0.77$), and symptom appraisals ($\beta = -0.67$) were strong predictors of PTSD symptoms. Rumination ($\beta = 0.45$) and suppression ($\beta = 0.54$) were moderate predictors of PTSD symptoms. Past control ($\beta = 0.19$) and future control ($\beta = 0.06$) were poor predictors of PTSD symptoms.

As hypothesized, the group significantly moderated the relationship between PTSD symptoms and appraisals related to mental defeat ($\beta = 0.48$), self-blame ($\beta = 0.41$), present control ($\beta = -0.64$), and mastery ($\beta = 0.56$). Contrary to our hypothesis, the group was not found to moderate the relationship between control appraisals in relation to past events ($\beta = 0.14$) and future events ($\beta = 0.40$) and PTSD symptoms. The nature of the significant interactions was explored in greater detail using the method of simple slopes (Holmbeck, 2002; Fig. 2). For the European Australian group, self-blame ($\beta = 0.86$, $t = 9.58$, $p < .0001$), mental defeat ($\beta = 0.72$, $t = 7.92$, $p < .0001$), present control ($\beta = -0.83$, $t = 9.29$, $p < .0001$), and mastery ($\beta = -0.63$, $t = 6.09$, $p < .0001$) significantly predicted PTSD

symptoms, with very large effects observed. For the Asian Australian group, mental defeat did not significantly predict PTSD symptoms ($\beta = 0.35$, $t = 2.06$, n.s.), with a moderate effect observed. Present control ($\beta = -0.33$, $t = 2.77$, $p = .01$) and mastery ($\beta = -0.30$, $t = 2.52$, $p = .01$) significantly predicted PTSD symptoms, with moderate effects observed, and self-blame significantly predicted PTSD symptoms ($\beta = 0.58$, $t = 4.52$, $p < .001$), with a large effect.

Hypothesis 3: tests of moderated mediation

Independent self-construal mediated the relationships between appraisal and PTSD symptoms for the appraisal types mental defeat, $\beta = 0.23$, $SE = 0.13$, and 95% CI = [-0.58, -0.03], self-blame, $\beta = -0.93$, $SE = 0.61$, and 95% CI = [-2.49, -0.02], and present control, $\beta = 0.64$, $SE = 0.32$, and 95% CI = [0.12, 1.42], resulting in moderating mediation. Independent self-construal did not significantly mediate the relationships between mastery, $\beta = 0.42$, $SE = 0.37$, 95% CI = [-0.04, 1.51], and PTSD symptoms. We also conducted all of the analyses using interdependent self-construal as the mediator. None of the analyses resulted in moderating mediation for any of the appraisal types.

Discussion

The aim of this study was to investigate the influence of culture on the associations between appraisals and PTSD symptoms, with a particular focus on appraisals

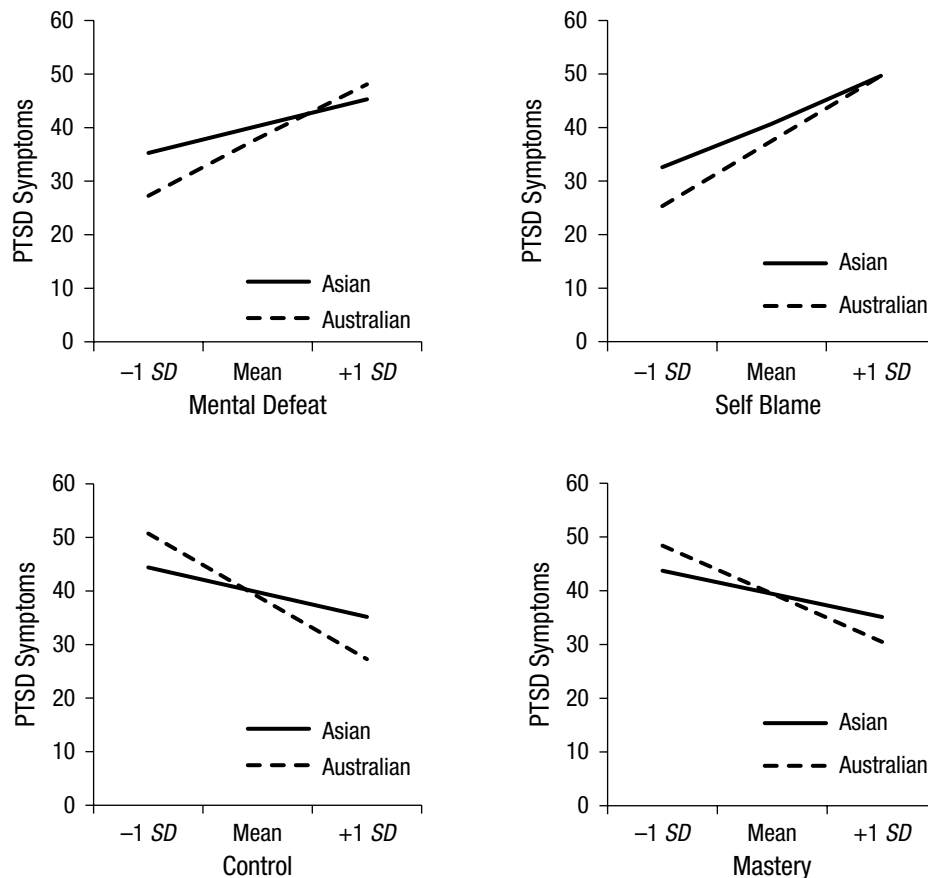


Fig. 2. Simple slopes for PTSD symptoms of Asian Australian and European Australians as predicted by appraisal type at 1 SD below the mean, the mean, and 1 SD above the mean: (a) mental defeat, (b) self-blame, (c) control over present events, and (d) mastery.

related to control and agency. First, as predicted, in both European Australians and Asian Australians, maladaptive appraisals had moderate to strong relationships with PTSD symptoms. The only exception to this was past and future control appraisals, whereby weak nonsignificant associations were observed. Second, as predicted, the group (European Australian, Asian Australian) moderated the relationship between control, responsibility, and agency appraisals (mental defeat, mastery, present control, self-blame) and PTSD symptoms. Specifically, for European Australian trauma survivors, greater mental defeat and self-blame and less perceived present control and mastery were very strong significant predictors of PTSD symptoms. In contrast, for the Asian Australian group, mental defeat was not a significant predictor of PTSD symptoms and, although perceived self-blame, present control, and mastery were significant predictors of PTSD, only moderate effects were observed (except for self-blame, where a large effect was observed). Third, the group moderated the indirect effect of the appraisals mental defeat, present control, and self-blame on PTSD symptoms through

independent self-construal. This finding demonstrated that the relationship between these appraisal types and PTSD symptoms is determined by the extent to which an individual emphasizes the independent self-construal. Additionally, it demonstrated that the magnitude of this relationship was contingent on one's group (i.e., European Australian or Asian Australian). Interdependent self-construal did not significantly mediate the relationship between any of the appraisals and PTSD symptoms.

Studies conducted with predominately Western samples have provided immense support for the association between mental defeat, negative beliefs about the self and world, maladaptive appraisals of trauma sequelae, maladaptive control appraisals, and posttrauma rumination and PTSD (e.g., Dunmore et al., 2001; Kleim et al., 2007; Thompson-Hollands et al., 2017; Zuj et al., 2017). The current study found that, in both Asian Australian and European Australian trauma survivors, these appraisals had moderate to strong relationships with PTSD symptoms. This demonstrates that, regardless of cultural background, negative appraisals are associated

with PTSD symptoms. This aligns with recent findings indicating that individuals across cultures with PTSD have similar disruptions in their autobiographical remembering (Jobson et al., 2014). The only weak non-significant associations found in both groups were appraisals relating to past and future control, which is consistent with several other studies that have also found weak associations between present and future control and PTSD (e.g., Frazier et al., 2001, 2004, 2011).

Although these findings provide evidence for the relationship between appraisals and PTSD symptoms, we also found that the relationships between mental defeat, present control, self-blame (i.e., personal responsibility), and mastery and PTSD symptoms were moderated by the group (i.e., identifying as Asian Australian or European Australian). We found that mental defeat, present control, self-blame, and mastery were substantial predictors of PTSD symptoms for European Australians. This may reflect the independent cultural tendency to value competency, agency, personal control, personal responsibility, and self-esteem, and causal inferences are generally oriented toward the self (Fiske, Kitayama, Markus, & Nisbett, 1998; Markus & Kitayama, 2010). The perceived loss of agency and control and the perception that the unique self is in some way responsible for the trauma violates these cultural values, and thus such appraisals may be associated with PTSD symptoms. However, such appraisals may be less associated with PTSD symptoms for those from Asian collectivistic cultures, where personal agency, control, and responsibility are downplayed (Cheng et al., 2013; Fiske et al., 1998; Markus & Kitayama, 2010; Mesquita & Walker, 2003). For Asian Australians, present control and mastery were only moderately associated with PTSD symptoms. Moreover, despite substantial research indicating the important role of mental defeat in PTSD, we found that mental defeat was not a significant predictor of PTSD symptoms for the Asian Australian group. This highlights that the vast literature investigating mental defeat and PTSD may be less relevant for those from Asian backgrounds. Finally, as Asian Australians tend to emphasize situational attributions rather than self-oriented causal inferences (Fiske et al., 1998), self-blame may have been associated with PTSD symptoms because attributing personal responsibility for the event contradicts cultural norms.

Our findings suggest that current PTSD models may have relevance and applicability for trauma survivors from Asian cultural backgrounds. However, there may also be cultural differences in the association between certain appraisals and PTSD. Our findings suggest the model may need to broaden its conceptualization of self, control, and responsibility to capture differences in self-construal. Negative autonomous appraisals may

be important for posttrauma recovery for those with an independent self-construal but less relevant for those emphasizing an interdependent self-construal. These suggestions align with the "Threat to the Conceptual Self" model developed by Jobson (2009), who proposed that appraisals reflective of low autonomy have a negative impact on the independent conceptual self but have less of an impact on the interdependent conceptual self. The findings also support the Cultural Influences on Mental Health Model (Hwang et al., 2008) and the Culturally Informed Illness Representation Self-Regulation Model (Wong et al., 2010) that acknowledge that violations of cultural norms and expectations play a role in psychopathology.

Future research needs to explore interdependent appraisals, as this may enhance our understanding of PTSD symptoms in collectivistic cultures. Several cross-cultural studies have found PTSD symptoms in collectivist cultures to be associated with appraisals relating to alienation and norm-self compatibility (i.e., the appropriateness of one's own behavior, feelings, and thoughts in the situation; Engelbrecht & Jobson, 2014). Cross-cultural research also suggests a distinction between primary and secondary control. It is suggested that primary control (i.e., perceived control over external events) may be valued in individualistic cultures. In contrast, secondary control (i.e., flexibly adjusting the self to fit in with existing realities rather than trying to influence one's environment; Rothbaum, Weisz, & Snyder, 1982) may be more relevant in Asian cultures (Morling & Evered, 2006). The role of secondary control in PTSD needs further investigation.

These findings have potential clinical implications. First, given the cultural similarities in many of the associations between appraisals and PTSD symptoms, current treatments targeting these appraisals may have utility in those from collectivistic backgrounds. However, given the focus on control, mastery, and self-blame in current assessments and treatment, these elements may need to be culturally tailored. Second, assessing the impact of trauma on individualistic-type appraisals and primary control is likely to have some clinical utility for trauma survivors from collectivistic cultures, as all individuals have both independent and interdependent aspects of self. However, there are very few assessment measures of interdependent-type appraisals (Engelbrecht & Jobson, 2012). Third, evidence-based treatments for PTSD, such as trauma-focused cognitive behavior therapy (TF-CBT) and cognitive processing therapy (CPT), focus primarily on identifying and modifying appraisals (e.g., "My reaction to the event is not under my control"). Targeting such appraisals aligns with the vast research on PTSD appraisals conducted using Western samples. As the

TF-CBT approach stresses clinicians work with the idiosyncratic appraisals of the client (Ehlers et al., 2010), it is important that clinicians also consider idiosyncratic appraisals surrounding interdependence. Additionally, CPT treatment modules relating to power and control and CPT's focus on beliefs pertaining to agency, control, and regaining control of one's life (Resick, Monson & Chard, 2016), may have less value to Asian clients.

Limitations include the cross-sectional design that prevents causal inferences. This is important because Dekel, Peleg, and Solomon (2013) found the relationship between appraisals and PTSD to be bidirectional: Whereas negative appraisals may lead to PTSD, PTSD may also result in the maintenance of appraisals. It is also possible that an unmeasured variable had a causal influence on our study variables. Second, participants did not undertake a clinical interview or receive a formal diagnosis of PTSD, and thus the data are based on self-report. However, 77% of European Australian participants and 89% of Asian Australian participants scored above the PTSD screening cutoff, indicating that both groups were experiencing significant posttraumatic distress. Third, Asian Australian participants were required to respond in English. As language can prime responses in bilingual individuals (Marion & Kaushanskaya, 2004), future research should consider translated questionnaires. Fourth, the study did not consider trauma type. It may be that differences exist when considering the interpersonal nature of particular traumas. Finally, the Asian Australian group was residing in a Western cultural context. Immigrants often lead a bicultural life and have contrasting knowledge structures (Ross & Wang, 2010). Thus, the length of time residing in Australia may have influenced findings. Therefore, we conducted all of our analyses with length of time in Australia as a covariate, and a similar pattern of findings to that presented emerged. Additionally, the sample was based on European Australian versus Asian Australian (i.e., nationality). Although this approach has routinely been adopted in cross-cultural clinical research (e.g., Dritschel et al., 2011; Grossman & Kross, 2010; Jobson et al., 2014) and the IISS measure revealed that the European Australian group endorsed greater independence and the Asian Australian group greater interdependence, there could have been greater assessment of these cultural norms. Further, we did not assess the European Australian citizenship of Asian Australian participants. Thus, we cannot ascertain whether the group was permanently or temporarily residing in Australia. Future research may benefit from conducting cross-country studies and investigating how cultural influences are internalized by bicultural immigrants and manifested in their appraisals. Despite these limitations, we found that the group (Asian Australian or European Australian)

moderated the association between personal control, mastery, responsibility, and agency appraisals and PTSD symptoms. It is imperative that further research is conducted to ensure evidence-based practice across cultures.

Action Editor

Erin B. Tone served as action editor for this article.

Author Contributions

J. Bernardi developed and conducted the study and wrote the first draft of the manuscript, and J. Bernardi and L. Jobson contributed to the final manuscript. Both authors approved the final manuscript for submission.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Supplemental Material

Additional supporting information can be found at <http://journals.sagepub.com/doi/suppl/10.1177/2167702619841886>

References

- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: SAGE. doi:10.2307/2583960
- Alliger-Horn, C., Hahn, I., Hessenbruch, I., Schultheis, J., Zimmermann, P., Hecker, T., & Willmund, G. (2017). The Posttraumatic Cognitions Inventory (PTCI) – Development and validation of a shortened military version based on a sample of German soldiers with deployment-related trauma. *Journal of Traumatic Stress Disorders & Treatment*, 6(2). doi:10.4172/2324-8947.1000169
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Washington, DC: Author.
- Berzengi, A., Berzenji, L., Kadim, A., Mustafa, F., & Jobson, L. (2017). Role of Islamic appraisals, trauma-related appraisals, and religious coping in the posttraumatic adjustment of Muslim trauma survivors. *Psychological Trauma: Theory, Research, Practice, and Policy*, 9, 189–197. doi:10.1037/tra0000179
- Botero García, C. (2005). Cognitive behavioral intervention for PTSD in Colombian combat veterans. *Universitas Psychologica*, 4, 205–219.
- Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders–Fifth Edition in veterans. *Psychological Assessment*, 28, 1379–1391. doi:10.1037/pas0000254
- Brewin, C. R., & Burgess, N. (2014). Contextualisation in the revised dual representation theory of PTSD: A response to Pearson and colleagues. *Journal of Behavior Therapy*

- and *Experimental Psychiatry*, 45, 217–219. doi:10.1016/j.jbtep.2013.07.011
- Bryant, R. A., & Guthrie, R. M. (2007). Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 75, 812–815. doi:10.1037/0022-006x.75.5.812
- Chang, M. X., Jetten, J., Cruwys, T., & Haslam, C. (2016). Cultural identity and the expression of depression: A social identity perspective. *Journal of Community & Applied Social Psychology*, 27, 16–34. doi:10.1002/casp.2291
- Cheng, C., Cheung, S. F., Chio, J. H., & Chan, M. S. (2013). Cultural meaning of perceived control: A meta-analysis of locus of control and psychological symptoms across 18 cultural regions. *Psychological Bulletin*, 139, 152–188. doi:10.1037/a0028596
- Clohessy, S., & Ehlers, A. (1999). PTSD symptoms, response to intrusive memories and coping in ambulance service workers. *British Journal of Clinical Psychology*, 38, 251–265. doi:10.1348/014466599162836
- Cooper, A. A., Zoellner, L. A., Roy-Byrne, P., Mavissakalian, M. R., & Feeny, N. C. (2017). Do changes in trauma-related beliefs predict PTSD symptom improvement in prolonged exposure and sertraline? *Journal of Consulting and Clinical Psychology*, 85, 873–882. doi:10.1037/ccp0000220
- Dalgleish, T. (2004). Cognitive approaches to posttraumatic stress disorder: The evolution of multirepresentational theorizing. *Psychological Bulletin*, 130, 228–260. doi:10.1037/0033-2909.130.2.228
- De Vries, M., Soetekouw, P. M., Van Der Meer, J. W., & Bleijenberg, G. (2001). Natural course of symptoms in Cambodia veterans: A follow-up study. *Psychological Medicine*, 31, 331–338. doi:10.1017/s0033291701003075
- Dekel, S., Peleg, T., & Solomon, Z. (2013). The relationship of PTSD to negative cognitions: A 17-year longitudinal study. *Psychiatry: Interpersonal and Biological Processes*, 76, 241–255. doi:10.1521/psyc.2013.76.3.241
- Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Behavioral Science*, 19, 1–15. doi:10.1002/bs.3830190102
- Dritschel, B., Kao, C. M., Astell, A., Neufeind, J., & Lai, T. J. (2011). How are depression and autobiographical memory retrieval related to culture? *Journal of Abnormal Psychology*, 120, 969–974. doi:10.1037/a0025293
- Duffy, M., Gillespie, K., & Clark, D. M. (2007). Post-traumatic stress disorder in the context of terrorism and other civil conflict in Northern Ireland: Randomised controlled trial. *BMJ*, 334(7604), Article 1147. doi:10.1136/bmj.39021.846852.be
- Dunmore, E., Clark, D. M., & Ehlers, A. (1999). Cognitive factors involved in the onset and maintenance of posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy*, 37, 809–829. doi:10.1016/s0005-7967(98)00181-8
- Dunmore, E., Clark, D. M., & Ehlers, A. (2001). A prospective investigation of the role of cognitive factors in persistent posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy*, 39, 1063–1084. doi:10.1016/s0005-7967(00)00088-7
- Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, 38, 319–345. doi:10.1016/s0005-7967(99)00123-0
- Ehlers, A., & Clark, D. M. (2008). Post-traumatic stress disorder: The development of effective psychological treatments. *Nordic Journal of Psychiatry*, 62(Suppl. 47), 11–18. doi:10.1080/08039480802315608
- Ehlers, A., Clark, D. M., Hackmann, A., Grey, N., Liness, S., Wild, J., . . . McManus, F. (2010). Intensive cognitive therapy for PTSD: A feasibility study. *Behavioural and Cognitive Psychotherapy*, 38, 383–398. doi:10.1017/s1352465810000214
- Ehlers, A., Maercker, A., & Boos, A. (2000). Posttraumatic stress disorder following political imprisonment: The role of mental defeat, alienation, and perceived permanent change. *Journal of Abnormal Psychology*, 109, 45–55. doi:10.1037//0021-843x.109.1.45
- Ehring, T., & Ehlers, A. (2014). Does rumination mediate the relationship between emotion regulation ability and posttraumatic stress disorder? *European Journal of Psychotraumatology*, 5(1), Article 23547. doi:10.3402/ejpt.v5.23547
- Ehring, T., Frank, S., & Ehlers, A. (2008). The role of rumination and reduced concreteness in the maintenance of posttraumatic stress disorder and depression following trauma. *Cognitive Therapy and Research*, 32, 488–506. doi:10.1007/s10608-006-9089-7
- Engelbrecht, A., & Jobson, L. (2014). An investigation of trauma-associated appraisals and posttraumatic stress disorder in British and Asian Australian trauma survivors: The development of the Public and Communal Self Appraisals Measure. *SpringerPlus*, 3(1), Article 44. doi:10.1186/2193-1801-3-44
- Fiske, A. P., Kitayama, S., Markue, H. R., & Nisbett, R. E. (1998). The cultural matrix of social psychology. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 915–981). New York, NY: McGraw-Hill.
- Foa, E. B., Cashman, L., Jaycox, L., & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: The Posttraumatic Diagnostic Scale. *Psychological Assessment*, 9, 445–451. doi:10.1037//1040-3590.9.4.445
- Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The Posttraumatic Cognitions Inventory (PTCI): Development and validation. *Psychological Assessment*, 11, 303–314. doi:10.1037//1040-3590.11.3.303
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2008). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies*. New York, NY: Guilford Press.
- Foa, E. B., McLean, C. P., Zang, Y., Zhong, J., Powers, M. B., Kauffman, B. Y., . . . Knowles, K. (2016). Psychometric properties of the Posttraumatic Diagnostic Scale for DSM-5. *Psychological Assessment*, 28, 1166–1171. doi:10.1037/pas0000258
- Foa, E. B., Zinbarg, R., & Rothbaum, B. O. (1992). Uncontrollability and unpredictability in post-traumatic

- stress disorder: An animal model. *Psychological Bulletin*, *112*, 218–238. doi:10.1037//0033-2909.112.2.218
- Frazier, P., Anders, S., Shallcross, S., Keenan, N., Perera, S., Howard, K., & Hintz, S. (2012). Further development of the temporal model of control. *Journal of Counseling Psychology*, *59*, 623–630. doi:10.1037/a0029702
- Frazier, P., Berman, M., & Steward, J. (2001). Perceived control and posttraumatic stress: A temporal model. *Applied and Preventive Psychology*, *10*, 207–223. doi:10.1016/s0962-1849(01)80015-9
- Frazier, P., Keenan, N., Anders, S., Perera, S., Shallcross, S., & Hintz, S. (2011). Perceived past, present, and future control and adjustment to stressful life events. *Journal of Personality and Social Psychology*, *100*, 749–765. doi:10.1037/a0022405
- Frazier, P., Steward, J., & Mortensen, H. (2004). Perceived control and adjustment to trauma: A comparison across events. *Journal of Social and Clinical Psychology*, *23*, 303–324. doi:10.1521/jscp.23.3.303.35452
- Frazier, P. A. (2003). Perceived control and distress following sexual assault: A longitudinal test of a new model. *Journal of Personality and Social Psychology*, *84*, 1257–1269. doi:10.1037/0022-3514.84.6.1257
- Grossmann, I., & Kross, E. (2014). Exploring Solomon's paradox: Self-distancing eliminates the self-other asymmetry in wise reasoning about close relationships in younger and older adults. *Psychological Science*, *25*, 1571–1580. doi:10.1177/0956797614535400
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hinton, D. E., Hofmann, S. G., Orr, S. P., Pitman, R. K., Pollack, M. H., & Pole, N. (2010). A psychobiocultural model of orthostatic panic among Cambodian refugees: Flashbacks, catastrophic cognitions, and reduced orthostatic blood-pressure response. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*, 63–70. doi:10.1037/a0018978
- Holliday, R., Link-Malcolm, J., Morris, E. E., & Surís, A. (2014). Effects of cognitive processing therapy on PTSD-related negative cognitions in veterans with military sexual trauma. *Military Medicine*, *179*, 1077–1082. doi:10.7205/milmed-d-13-00309
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and paediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, *65*, 599–610. doi:10.1037/0022-006X.65.4.599
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, *27*, 87–96. doi:10.1093/jpepsy/27.1.87
- Hwang, W., Myers, H., Abe-Kim, J., & Ting, J. (2008). A conceptual paradigm for understanding culture's impact on mental health: The cultural influences on mental health (CIMH) model. *Clinical Psychology Review*, *28*, 211–227. doi:10.1016/j.cpr.2007.05.001
- Imada, T., & Ellsworth, P. C. (2011). Proud Americans and lucky Japanese: Cultural differences in appraisal and corresponding emotion. *Emotion*, *11*, 329–345. doi:10.1037/a0022855
- Itoh, M., Ujiie, Y., Nagae, N., Niwa, M., Kamo, T., Lin, M., . . . Kim, Y. (2017). The Japanese version of the Posttraumatic Diagnostic Scale: Validity in participants with and without traumatic experiences. *Asian Australian Journal of Psychiatry*, *25*, 1–5. doi:10.1016/j.ajp.2016.09.006
- Jobson, L. (2011). Cultural differences in levels of autonomous orientation in autobiographical remembering in posttraumatic stress disorder. *Applied Cognitive Psychology*, *25*, 175–182.
- Jobson, L., & O'Kearney, R. T. (2009). Impact of cultural differences in self on cognitive appraisals in posttraumatic stress disorder. *Behavioural and Cognitive Psychotherapy*, *37*, 249–266. doi:10.1017/s135246580900527x
- Jobson, L., Miskon, N., Dalgleish, T., Hitchcock, C., Hill, E., Golden, A., . . . Mukhtar, F. (2018). Impact of culture on autobiographical life structure in depression. *British Journal of Clinical Psychology*, *57*, 382–396. doi:10.1111/bjc.12181
- Jobson, L., Moradi, A. R., Rahimi-Movaghar, V., Conway, M. A., & Dalgleish, T. (2014). Culture and the remembering of trauma. *Clinical Psychological Science*, *2*, 696–713. doi:10.1177/2167702614529763
- Kaaya, S. F., Fawzi, M. C. S., Mbwambo, J. K., Lee, B., Msamanga, G. I., & Fawzi, W. (2002). Validity of the Hopkins Symptom Checklist-25 amongst HIV-positive pregnant women in Tanzania. *Acta Psychiatrica Scandinavica*, *106*, 9–19. doi:10.1034/j.1600-0447.2002.01205.x
- Kirmayer, L. J. (2012). Cultural competence and evidence-based practice in mental health: Epistemic communities and the politics of pluralism. *Social Science & Medicine*, *75*, 249–256. doi:10.1016/j.socscimed.2012.03.018
- Kleim, B., Ehlers, A., & Glucksman, E. (2007). Early predictors of chronic post-traumatic stress disorder in assault survivors. *Psychological Medicine*, *37*, 1457–1467. doi:10.1017/s0033291707001006
- Kleim, B., Ehlers, A., & Glucksman, E. (2012). Investigating cognitive pathways to psychopathology: Predicting depression and posttraumatic stress disorder from early responses after assault. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*, 527–537. doi:10.1037/a0027006
- Kleim, B., Grey, N., Wild, J., Nussbeck, F. W., Stott, R., Hackmann, A., . . . Ehlers, A. (2013). Cognitive change predicts symptom reduction with cognitive therapy for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *81*, 383–393. doi:10.1037/a0031290
- Lu, L., & Gilmour, R. (2007). Developing a new measure of independent and interdependent views of the self. *Journal of Research in Personality*, *41*, 249–257. doi:10.1016/j.jrp.2006.09.005
- Marian, V., & Kaushanskaya, M. (2004). Self-construal and emotion in bicultural bilinguals. *Journal of Memory and Language*, *51*, 190–201. doi:10.1016/j.jml.2004.04.003
- Markus, H. R., & Kitayama, S. (2010). Cultures and selves. *Perspectives on Psychological Science*, *5*, 420–430. doi:10.1177/1745691610375557
- Mesquita, B., & Walker, R. (2003). Cultural differences in emotions: A context for interpreting emotional experiences.

- Behaviour Research and Therapy*, 41, 777–793. doi:10.1016/s0005-7967(02)00189-4
- Morling, B., & Evered, S. (2006). Secondary control reviewed and defined. *Psychological Bulletin*, 132, 269–296. doi:10.1037/0033-2909.132.2.269
- Murray, J., Ehlers, A., & Mayou, R. A. (2002). Dissociation and post-traumatic stress disorder: Two prospective studies of road traffic accident survivors. *British Journal of Psychiatry*, 180, 363–368. doi:10.1192/bjp.180.4.363
- Palyo, S. A., & Beck, G. J. (2005). Post-traumatic stress disorder symptoms, pain, and perceived life control: Associations with psychosocial and physical functioning. *Pain*, 117, 121–127. doi:10.1016/j.pain.2005.05.028
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19, 2–21. doi:10.2307/2136319
- Pudrovska, T., Schieman, S., Pearlin, L. I., & Nguyen, K. (2005). The sense of mastery as a mediator and moderator in the association between economic hardship and health in late life. *Journal of Aging and Health*, 17, 634–660. doi:10.1177/0898264305279874
- Resick, P. A. (2001). *Clinical psychology, a modular course. Stress and trauma*. New York, NY: Psychology Press.
- Resick, P. A., Monson, C. M., & Chard, K. M. (2016). *Cognitive processing therapy for PTSD: A comprehensive manual*. New York, NY: Guilford Publications.
- Ross, M., & Wang, Q. (2010). Why we remember and what we remember: Culture and autobiographical memory. *Perspectives on Psychological Science*, 5, 401–409.
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, 42, 5–37. doi:10.1037//0022-3514.42.1.5
- Rusch, H. L., Shvil, E., Szanton, S. L., Neria, Y., & Gill, J. M. (2015). Determinants of psychological resistance and recovery among women exposed to assaultive trauma. *Brain and Behavior*, 5(4), Article e00322. doi:10.1002/brb3.322
- Steil, R., & Ehlers, A. (2000). Dysfunctional meaning of posttraumatic intrusions in chronic PTSD. *Behaviour Research and Therapy*, 38, 537–558. doi:10.1016/s0005-7967(99)00069-8
- Su, Y. J., & Chen, S. H. (2008). The posttraumatic cognitions inventory-Chinese revised: Validation and refinement with a traumatized college sample in Taiwan. *Journal of Anxiety Disorders*, 22, 1110–1119. doi:10.1016/j.janxdis.2007.11.008
- Thompson-Hollands, J., Jun, J. J., & Sloan, D. M. (2017). The association between peritraumatic dissociation and PTSD symptoms: The mediating role of negative beliefs about the self. *Journal of Traumatic Stress*, 30, 190–194. doi.org/10.1002/jts.22179
- Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology*, 74, 118–128. doi:10.1037//0022-3514.74.1.118
- Ullman, S. E., & Peter-Hagene, L. (2014). Social reactions to sexual assault disclosure, coping, perceived control, and PTSD symptoms in sexual assault victims. *Journal of Community Psychology*, 42, 495–508. doi:10.1002/jcop.21624
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD checklist for DSM-5 (PCL-5)*. Retrieved from <https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp>
- Whitley, R., Rousseau, C., Carpenter-Song, E., & Kirmayer, L. J. (2011). Evidence-based medicine: Opportunities and challenges in a diverse society. *The Canadian Journal of Psychiatry*, 56, 514–522. doi:10.1177/070674371105600902
- Wong, Y. J., Tran, K. K., Kim, S., Van Horn Kerne, V., & Calfa, N. A. (2010). Asian Americans' lay beliefs about depression and professional help seeking. *Journal of Clinical Psychology*, 6, 317–332. doi:10.1002/jclp.20653
- Yeomans, P. D., & Forman, E. M. (2009). Cultural factors in traumatic stress. In S. Eshun & R. A. R. Gurung (Eds.), *Culture and mental health: Sociocultural influences, theory, and practice* (pp. 221–244). Hoboken, NJ: Wiley-Blackwell. doi:10.1002/9781444305807.ch11
- Zalta, A. K., Gillihan, S. J., Fisher, A. J., Mintz, J., McLean, C. P., Yehuda, R., & Foa, E. B. (2014). Change in negative cognitions associated with PTSD predicts symptom reduction in prolonged exposure. *Journal of Consulting and Clinical Psychology*, 82, 171–175. doi:10.1037/a0034735
- Zuj, D. V., Palmer, M. A., Gray, K. E., Hsu, C. M. K., Nicholson, E. L., Malhi, G. S., . . . Felmingham, K. L. (2017). Negative appraisals and fear extinction are independently related to PTSD symptoms. *Journal of Affective Disorders*, 217, 246–251. doi:10.1016/j.jad.2017.04.016