

## Cultural differences in autobiographical memory of trauma

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### Abstract

This study investigated cultural differences in autobiographical memory of trauma. Australian and Asian international students provided self-defining memories, narratives of everyday and trauma memories and self-reports assessing adjustment to the trauma. No cultural distinction was found in how Australian or Asian subjects remembered a personal traumatic event in terms of the memory's theme, degree of autonomous content or proportion of references to self or others. In contrast, cultural differences were found in the relationship between disrupted adjustment to trauma and trauma-themed self-definition, with disrupted adjustment to the trauma being related to stronger self-definition centred on trauma for Australian but not for Asian subjects. These findings are discussed in terms of memory and self in autobiographical memories, a questioning of the universal applicability of clinical cognitive models of posttraumatic stress disorder, and clinical implications of such findings such as cultural considerations of self in assessment and treatment in cognitive therapy for posttraumatic distress.

**Keywords:** *Clinical/counselling psychology, cross-cultural comparison, cross-cultural psychology, memory*

The nature of personal memory for traumatic events continues to be an important focus of attempts to understand what distinguishes adaptive psychological adjustment to traumatic experiences from disturbed psychological adjustment (e.g., Brewin, Dalgleish, & Joseph, 1996; Conway & Pleydell-Pearce, 2000; Dalgleish, 2004; Ehlers & Clarke, 2000; Foa, Steketee, & Rothbaum, 1989; Horowitz, 1986, 1997). While these cognitive models vary in significant ways in how they conceptualise autobiographical memory and in their understanding of how trauma impacts on personal memory (see Brewin & Holmes, 2003; Dalgleish, 2004 for reviews), they agree in proposing that autobiographical memory in people with disturbed psychological adjustment shows particular types of disruption. They include hypotheses about structural disruption in autobiographical memory such as the dominance of sensory, perceptual and emotional impressions and deficits in conceptual connection or organisation of the event memory resulting in memory fragmentation or disorganisation. A number of these theories (Brewin & Holmes, 2003; Conway & Pleydell-Pearce, 2000; Ehlers & Clarke, 2000) also propose that autobiographical memories of the trauma for people with disturbed adjustment are

less integrated with the rest of the person's autobiographical memory and that their attempts to make sense of the event "with respect to oneself" and in relationship "to other autobiographical information" (Halligan, Michael, Clark, & Ehlers, 2003, p. 422) are significantly impaired. For example, Conway and Pleydell-Pearce (2000) propose that people who develop posttraumatic stress disorder (PTSD) are not able to make use of their existing goals to integrate the traumatic event into their autobiographical knowledge base. Hence, the trauma event memory remains uncontextualised event-specific knowledge. These types of models have important clinical implications because they predict that positive adaptation to trauma should involve the development of conceptual associations not only between separate memories of the event but also to existing autobiographical memories. Most contemporary clinical theories propose that elaboration of the trauma memories is critical for positive outcome in treating people with disturbed adjustment following trauma. This often involves helping the person making sense of the trauma in respect to aspects of their self-image and goals and facilitating the integration of the trauma memory into existing self-knowledge (Hembree & Foa, 2004).

These models have been very influential both theoretical and clinically. There are two separate but related issues, however, which we believe represent significant limitations to these formulations and their broader clinical applicability. The first is that the majority of these models do not take up the challenge of fitting their propositions about autobiographical memory with psychological understandings of the nature of self. Perhaps as a consequence, they ignore the second issue: this is the impact of culture on the unique, intrinsic, and symbiotic relationship between the self and autobiographical memory (e.g., Conway & Holmes, 2004; Greenwald, 1980; James, 1950; Kelly, 1955; Schachtel, 1947). Because culture is critical to the nature and development of the self, it also needs to become a critical issue in research in adjustment to trauma. More pragmatically, the prevalence of natural and human-made traumas in the non-Western countries far exceeds that experienced by Western countries. For the most part, however, the evidence addressing questions relating to the self, autobiographical memory and trauma have come from studies of people in Western countries. It is important, then, that research begins to address the universal relevance and applicability of the current psychological models of posttraumatic distress. The current study investigates whether important cultural differences are evident in the contents, quality and organisation of autobiographical memory for traumatic events and whether cultural differences have implications for conceptualising psychological adjustment following trauma.

Of the various cognitive frameworks that make reference to a link between posttraumatic adjustment and disruption to trauma memory only the Conway and Pleydell-Pearce (2000) self-memory system (SMS) incorporates a conceptualisation of self and is sympathetic to cultural considerations. It provides the framework for our ongoing work on culture and memory for trauma. According to Conway (2005) the SMS "consists of two main components, the *working self* and the *autobiographical knowledge base* [italics added] (p. 594). Each of these are organised hierarchically; the working self as a motivational hierarchy of goals and subgoals and the autobiographical knowledge base as a structural hierarchy of knowledge that ranges "from highly abstract and conceptual knowledge to conceptual knowledge that is event specific and experience near" (Conway, 2005, p. 608). The SMS framework also recognises a conceptual knowledge base, which, alongside the working self, regulates autobiographical remembering. Conway, Mearns, and Standart (2004) refer to this as the *conceptual self*. It is the conceptual self's realisation as "social constructed schema and categories that define the self, other people, and typical interactions with the surrounding world... drawn

from the influences of familiar and peer socialisation, schooling and religion, as well as the stories, fairytales, myths, and media influences that are constitutive of an individual's culture" (Conway, 2005, p. 597), which places the SMS framework, and its understanding of self and of autobiographical memory, clearly into the cultural sphere.

One important cultural distinction that influences the nature of the conceptual self is the distinction between an individual/independent versus a relatedness/interdependent orientation (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Triandis, 1995). Cultural theorists (e.g., Markus & Kitayama, 1991; Sato, 2001) espouse that although all individuals possess both autonomous and relatedness aspects of the self, individuals from Western/individualistic cultures tend to emphasise the dominance of an autonomous self, while Asian/collectivistic cultures give emphasis to the dominance of a relatedness self (Sato, 2001). Differing cultural emphases along the autonomy/relatedness dimensions impact on all components of the conceptual self proposed by SMS (Conway, 2005). As well, the active goal hierarchy (i.e., the working self) that encodes and integrates new information into long-term memory has an autonomy/relatedness aspect. Because both the conceptual and working self "act as control processes in the everyday regulation of memory" (Conway, 2005, p. 597) then the cultural distinction should be reflected in autobiographical remembering.

There is now some empirical research supporting these claims about cultural variations in autobiographical memory. Wang (Wang, 2001; Wang & Conway, 2004) found that U.S. students provide personal memories that focused on their individual experiences, their own roles, emotions and attitudes whereas Chinese students' memories centred on collective activities, social events and interactions, significant others, and emotionally neutral events. There were also culturally dependent differences in the quality of autobiographical memory. U.S. students provided lengthy and more elaborate memory narratives about specific events than the Chinese students, who were more likely to remember brief, routine and less elaborate relations-centred events. Conway, Wang, Hanyu, and Haque (2005) have shown similar culturally dependent differences in theme and specificity of personal memories provided by U.S. and Chinese middle-aged adults despite there being no cultural differences in the age of encoding of these personal memories. Jobson and O'Kearney (2006) recently found that when asked to recall memories that were by definition self-focused (self-defining memories), Australian subjects provided memories emphasising autonomy and Asian International students recalled memories of relatedness,

social interactions and group activities. Further, Jobson and O’Kearney (2006) found that Australian subjects retrieved more specific self-defining memories than did Asian participants and when the theme of the memory was autonomous Australian subjects retrieved more elaborate memories. However, when the theme of the memories was relatedness Asian subjects retrieved equally elaborate memories.

These cultural differences are consistent with the role played by SMS’ conceptual self in regulating the remembering of autobiographical material. With regard to these findings, Wang and Conway (2004) suggest that culturally determined differences in autonomy versus relatedness affect the contents and organisation of individuals’ autobiographical memory. Specifically, by retrieving memories of significant personal experiences, often unique to the individual, with specific details and salient emotion, and with the individual cast as “the leading player” in the story, Westerners are able to reaffirm the self as an autonomous unit, because these memories serve an important process, to differentiate the self from others (Wang & Conway, 2004). In contrast, Asian subjects, who emphasise relatedness, prioritise memories of group activities and those with a salient social orientation, which help to engage individuals in relationships and reinforce social conventions, thus reinforcing the self as a relational unit. In sum, by taking different forms and contents, autobiographical memories may maintain and regulate the different approaches to selfhood, held by particular cultures (Wang & Conway, 2004).

How might this cultural distinction impact on autobiographical remembering for a traumatic event? There is evidence (e.g., McGuire, McGuire, Chile, & Fujioka, 1978; Trafimow, Triandis, & Goto, 1991; Wagar & Cohen, 2003) that the cultural dominance in the autonomy/relatedness distinction can be overridden by temporary primes that call forth the different orientation of the self. A traumatic event by its nature challenges goals to survive, to protect personal safety, and to personally control and master the situation (Dalglish, 2004; Meares, 2004). Such situations will activate an autonomous goal hierarchy or working self and in order to maintain an autonomous sense of self there will be a universal foregrounding of autonomy in remembering traumatic events. This suggests that for Western/independent individuals, the working and conceptual self work in parallel in autobiographical remembering of trauma. In contrast, in Asian/interdependent cultures it is suggested that the conceptual self gives way to the autonomous working self when faced with trauma.

How might the cultural distinction impact on psychological adjustment to trauma? According to SMS, how well people adjust in psychological terms

to a trauma will depend on the degree that they are able to make use of their existing goals to integrate the traumatic event with their autobiographical knowledge base. When that integration is not achievable a number of solutions are available. In some cases the working self may act to “lower the accessibility of memories of the events” or “even distort memories” to maintain a sense of integration (Conway, 2005, p. 599). Over time, and more commonly, a sense of integration is maintained by alteration in the person’s self-construct, leading to the development of a self-identity centred on being a victim of trauma or emphasising self-change since the event (Bernsten, Willert, & Rubin, 2003; Conway 2005). There is some empirical support for this solution in people with disturbed adjustment to trauma. Sutherland and Bryant (2006) explored the self-defining memories of participants with PTSD and without PTSD. They found that PTSD participants reported themselves as being more strongly defined or identified by their trauma than those who do not develop PTSD, supporting the prediction that people with PTSD view their traumatic experience as part of their current identity. As well, Byrne, Hyman, and Scott (2001) in a sample of female undergraduate students found that the degree to which the memory for the trauma was important for understanding the self was positively related to the severity of symptoms on a PTSD checklist. This sense of integration through change in the conceptual self is likely to be facilitated when there is congruence between the goals of the conceptual self and those activated by the trauma memory. We suggest that for people from Asian/collective cultures, because there is a general lack of congruence between goals associated with memories for trauma (autonomous) and the goals of the conceptual self (predominantly relatedness), then problematic psychological adjustment is less likely to be associated with self-change, particularly the development of a self-definition around the trauma.

The current study tests these predictions by asking Australian and Asian subjects to provide personal memories of everyday and trauma events, to evaluate the current psychological impact of the trauma and to retrieve self-defining memories. We hypothesise the following: (a) the cultural distinction between individual versus relatedness orientation will be evident in everyday memories but not in trauma memories; autobiographical memories of trauma for both Australian and Asian subjects will be predominately autonomous; and (b) disrupted adjustment to the trauma measured by symptom self-report will be related to stronger self-definition centred on trauma for Australian but not for Asian subjects.

## Methods

### Participants

All participants were recruited from psychology courses at the Australian National University and received extra credit for their participation. The Australian sample (10 male, 16 female) ranged in age from 17 to 42 years ( $M = 22.46$ ,  $SD = 6.40$ ) and had lived in Australia for 14–42 years ( $M = 21.60$ ,  $SD = 6.39$ ). This entire sample reported that they all spoke English at home and the religious affiliation distribution was 73.08% no religious affiliation, 23.08% Christian and 3.85% Mormon. The Asian sample (8 male, 16 female) was aged 18–25 years ( $M = 20.58$ ,  $SD = 1.53$ ) and had lived in Australia for 1 month–10 years ( $M = 2.20$ ,  $SD = 2.12$ ). The ethnic distribution was 54.17% Chinese, 12.5% Singaporean, 8.33% Japanese, 8.33% Taiwanese, 8.33% Korean, 4.17% Indian and 4.17% Bhutanese. Language spoken at home was Chinese in 25%, Cantonese in 20.83%, Mandarin 12.50%, English 12.50%, Japanese 8.33%, Korean 8.33%, Bengali 4.17%, Taiwanese 4.17% and 4.17% Dzongkha; the religious distribution was 41.67% no religious affiliation, 41.67% Christian, 8.33% Islamic and 8.33% Buddhist.

### Measures

*Self-defining memories.* Using the Singer and Salovey (1993) method, participants were informed that “a self-defining memory is a memory from your life that you remember very clearly, is important to you and leads to strong feelings, that may be either positive or negative, or both. It is the kind of memory that helps you to understand who you are and might be the memory you would tell someone else if you wanted that person to understand you in a more profound way. They are memories that you feel convey powerfully how you have come to be the person you currently are. Please briefly write down five self-defining memories. You have 8 min to complete the task.”

*Autobiographical memory: Trauma event.* Participants were asked to “think about a significant, emotionally, traumatic event that you have personally experienced. Please write about this event for 5 min in as much detail as you can. All your writing will be completely confidential. As you write do not worry about punctuation or grammar, just really let go and write as much as you can.” Following the narrative task, participants were asked to rate on a 10-point Likert-type scale, from 1 (*not at all*) to 10 (*extremely*), how traumatic the event was, and the impact the event had on their lives. Participants were then asked to write down when the event occurred.

*Everyday event.* Participants were asked to “think about one event you did on the weekend. Please write about this event for 5 min in as much detail as you can. All your writing will be completely confidential. As you write do not worry about punctuation or grammar, just really let go and write as much as you can.”

*Adjustment to the trauma event.* Disrupted adjustment to the trauma disclosed in the narrative task was assessed using the Impact of Event Scale–Revised (IES-R), a prominently selected measure to assess trauma symptomatology that consists of avoidance, intrusions and hyperarousal scales. It has adequate psychometric properties (Weiss & Marmar, 1997) and has been used in previous cross-cultural research (e.g., Ho, 1999). Depression and anxiety was also measured using the Hopkins Symptom Checklist (HSCL-25), which also has adequate psychometric properties (Derogatis, Lipman, Rickels, & Cori, 1974).

*Demographics.* Participants were asked to disclose their age, gender, length of time in Australia, country of birth, language spoken at home and religious affiliation. Following this, participants were asked to rate on a 10-point Likert-type scale from 1 (*not at all*) to 10 (*extremely*) how hard they found the study.

### Procedure

Following written informed consent procedures, participants were given the 23-paged data booklet and all data were obtained in one experimental session (approx. 50 min). The order of tasks in the data booklet was self-defining memory task, trauma memory narrative, everyday memory narrative (the two narrative tasks were counterbalanced), HSCL-25, IES-R, and demographics. Participants were instructed by the researcher to stop after timed tasks. The same Caucasian researcher administered all experimental sessions.

### Scoring of memory narratives

A coding scheme was developed based on personal memory variables that have been tested in various studies (Han, Leichtman, & Wang, 1998; Wang, 2001; Wang & Conway, 2004; Wang & Leichtman, 2000; Wang, Leichtman, & White, 1998).

*Theme.* Two raters coded each memory into one of the following categories that reflected the content themes: (a) the autonomy theme was associated with objects or events in the environment and was not particularly related to other people (e.g., academic achievement, sporting endeavours, etc.); and (b) the relatedness theme was about collective activities of

the family, workplace, community or other social groups.

*Autonomous orientation.* This variable was a measure of participants' tendency to emphasise autonomy in their memories. The raters counted the number of occurrences of the following instances, and the scores of these six instances were combined to produce a single score of autonomous orientation for each memory: (a) reference to personal needs, desires or preferences; (b) reference to personal dislikes or avoidance; (c) reference to personal evaluations, judgments, or opinions regarding other people, objects, or events; (d) reference to retaining control over one's own actions and resisting group or social pressure; (e) reference to personal achievement or competency; and (f) the number of instances that involved just the individual.

*Other/self ratio.* The rater counted the number of times participants mentioned themselves and other people in their memories, respectively. An "other/self ratio" was then calculated for each memory. Wang and Conway (2004) used this ratio to index the participants' degree of providing non-egotistic memories and, thus, social orientation.

*Interaction scenario.* The number of instances that involved social interactions or group activities were counted and totalled for each memory.

*Reflective comment.* Wang and Conway (2004) found that Chinese participants made significantly more reflective comments than U.S. participants. Hence, the raters counted the number of comments participants made that entailed their reflections on mores or world views deriving from their memory event.

*Memory specificity.* Raters coded the memories as specific if the event happened at a particular point in time, or general if the event occurred regularly or on multiple occasions (Pillemer, 1998). Research has found that people tend to still provide both types of memories even when they are explicitly asked to recall specific events and this tendency varies between culture groups (Han et al., 1998).

*Self-defining memories.* Each self-defining memory was coded as trauma-themed if it was directly and clearly related to the trauma theme of the trauma narrative. The total number of trauma-themed self-defining memories was tallied for each participant, and then divided by the number of memories retrieved, to provide a trauma-theme ratio.

*Reliability.* A second independent rater coded 20% of responses of the current data for specificity, theme,

autonomous orientation, reflective comment and interaction scenario. Raters had 78% agreement on specificity and 80% agreement on theme. The mean kappa coefficient of reliability for each condition was .65 for autonomous orientation, 1.00 for reflective comment and .85 for interaction scenario.

## Results

### *Participant characteristics*

The two groups did not differ in terms of age,  $t(48) = 1.40$ ,  $p > .05$ , or in gender distribution,  $\chi^2(1, N = 50) = .71$ ,  $p > .05$ . Asian subjects had lived in Australia for significantly less time than Australian subjects,  $t(48) = 14.16$ ,  $p < .01$  but reported that they found the study no more difficult than Australian subjects ( $M = 5.33$ ,  $SD = 2.35$ ;  $M = 4.96$ ,  $SD = 2.18$ , respectively),  $t(48) = .58$ ,  $p > .05$ . The groups did not differ in terms of depression,  $t(48) = .45$ ,  $p > .05$  ( $M = 1.76$ ,  $SD = .60$ ;  $M = 1.86$ ,  $SD = .43$ , Australian and Asian subjects, respectively), or anxiety ( $M = 1.73$ ,  $SD = .69$ ;  $M = 1.66$ ,  $SD = .39$ , Australian and Asian subjects, respectively),  $t(48) = .67$ ,  $p > .05$ . However, Asian subjects ( $M = 27.54$ ,  $SD = 15.91$ ) reported significantly higher on the IES-R than Australian subjects ( $M = 12.15$ ,  $SD = 12.46$ ),  $t(48) = 3.82$ ,  $p < .01$ . Furthermore, Asian subjects reported significantly higher on the subscales; avoidance ( $M = 10.96$ ,  $SD = 6.54$ ; vs.  $M = 5.15$ ,  $SD = 5.46$  for Australian subjects),  $t(48) = 3.42$ ,  $p < .01$ , intrusions ( $M = 12.17$ ,  $SD = 8.08$ ; vs.  $M = 5.31$ ,  $SD = 5.31$  for Australian subjects),  $t(48) = 3.57$ ,  $p < .01$ , and hyperarousal ( $M = 4.42$ ,  $SD = 4.06$ ; vs.  $M = 1.69$ ,  $SD = 2.85$  for Australian subjects),  $t(48) = 2.76$ ,  $p < .01$ .

### *Preliminary analysis for narrative task*

There was no significant difference between Australian and Asian subjects' reports of how traumatic they found the trauma event ( $M = 9.27$ ,  $SD = 1.08$ ;  $M = 9.04$ ,  $SD = 1.16$ , respectively),  $t(48) = .72$ ,  $p > .05$ , event impact ( $M = 8.96$ ,  $SD = 1.25$ ;  $M = 8.75$ ,  $SD = 1.62$ ),  $t(48) = .52$ ,  $p > .05$ , or time of event ( $M = 5.81$  years,  $SD = 4.23$  years;  $M = 6.46$  years,  $SD = 5.12$  years, respectively),  $t(48) = .26$ ,  $p > .05$ . The trauma narratives were classified into the following trauma type categories: death of a family member, environmental disaster, academic failing, physical injury, parents' divorce/family break-up, animal death, relationship break-up/difficulties, peer rejection/bullying/friendship break-up, rape/sexual assault, motor vehicle accident, family rejection/disapproval/pressure, migration, work difficulties and mental illness diagnosis. The two groups did not differ in terms of trauma type distribution,

$\chi^2(13, N=50) = 20.83, p > .05$ . However, 23% of Australian subjects retrieved trauma memories related to death of a family member whereas none of the Asian subjects retrieved such memories. Further, 25% of Asian participants retrieved trauma memories related to academic failure whereas no Australian participants retrieved such trauma memories. All other trauma types were relatively comparable.

A  $2 \times 2$  ANOVA with culture (Asian vs. Australian) as a between-subject factor and memory (everyday vs. trauma) as a within-subject factor with number of words as the dependent measure, revealed no differences in memory volume of everyday ( $M = 108.12, SD = 29.00$ ) versus trauma ( $M = 109.18, SD = 30.22$ ) memories overall,  $F(1,48) = 1.13, p > .05$ . However, overall Asian students ( $M = 96.44, SD = 21.83$ ) had significantly shorter narratives than Australian students ( $M = 119.92, SD = 31.25$ ),  $F(1,48) = 11.38, p < .01$  and this cultural difference was not moderated by memory type,  $F(1,48) = 1.51, p > .05$ .

#### Comparative analysis of narratives

*Theme.* To examine culturally dependent differences in the memory theme of the everyday memories and trauma memories, we used a chi-square with culture (Asian vs. Australian) and theme classified as autonomous and relatedness for the memories. For the everyday memory the two groups did differ in terms of memory theme distribution,  $\chi^2(1, N=50) = 4.99, p < .05$ . Australian students were more likely to provide autonomous-themed everyday memories (46.15%) compared with their Asian counterparts (16.67%). Asian students were more

likely to provide relatedness-themed everyday memories (83.33%) compared with their Australian student counterparts (53.85%). For the trauma memory, the two groups did not differ in terms of memory theme distribution,  $\chi^2(1, N=50) = .30, p > .05$ . Asian subjects were as likely to provide autonomous-themed trauma memories (50%) as their Australian counterparts (42.31%). Australian subjects were as likely to provide relatedness-themed trauma memories (57.69%) compared with their Asian student counterparts (50%).

To examine culturally dependent differences in the other narrative measures we used  $2 \times 2$  ANOVAs with culture (Asian vs. Australian) as a between-subject factor and memory (everyday vs. trauma) as a within-subject factor.

*Autonomous orientation.* Autonomous orientation was significantly greater in the trauma memories than in the everyday memories overall,  $F(1,48) = 5.61, p < .05$ . There was no significant difference between Australian and Asian students in autonomous orientation overall,  $F(1,48) = 3.02, p > .05$ . Additionally, the interaction between culture and memory was significant,  $F(1,48) = 4.08, p < .05$ . Australian subjects had significantly greater autonomous orientation in their everyday memories than did Asian subjects  $t(48) = 3.04, p < .01$ , but did not differ from Asian subjects in the autonomous orientation of their trauma memories,  $t(48) = .13, p > .05$ . Further, Australian participants did not differ in autonomous orientation in their trauma and everyday memories,  $t(25) = .24, p > .05$ , but Asian participants had significantly greater autonomous orientation in their trauma memories than their everyday memories,  $t(23) = 3.31, p < .01$  (Figure 1).

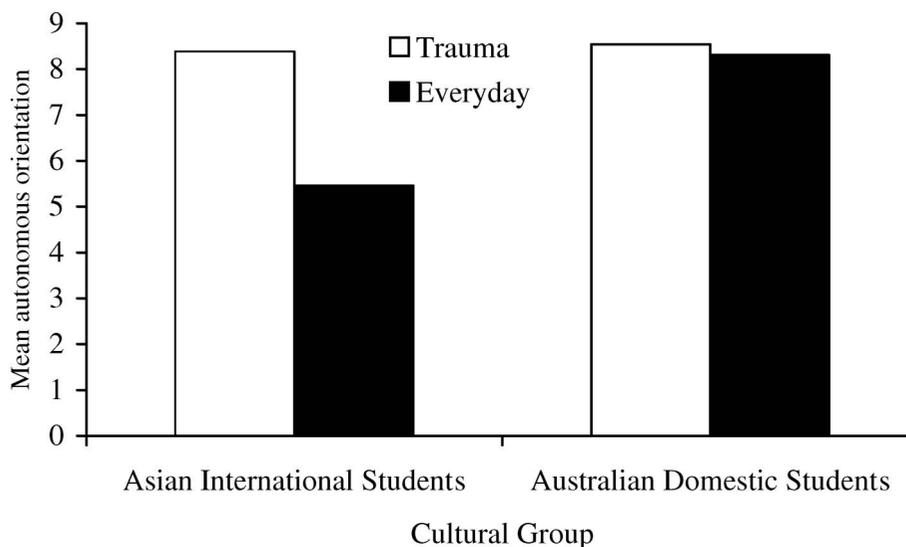


Figure 1. Mean autonomous orientation of everyday and trauma memories for Asian international students and Australian domestic students.

*Other/self ratio.* The other/self ratio was significantly greater in the everyday memory than the trauma memory overall,  $F(1,48) = 17.48, p < .01$ . However, there was no significant difference between Asian and Australian subjects in other/self ratio overall,  $F(1,48) = .01, p > .05$ . There was a significant interaction between culture and narrative type for other/self ratio,  $F(1,48) = 4.16, p < .05$ , with Asian students providing a significantly higher other/self ratio for everyday memories than trauma memories,  $t(48) = 4.04, p < .01$ , whereas Australian students provided equal other/self ratios for both trauma and everyday memories,  $t(48) = 1.66, p > .05$  (Figure 2).

*Interaction scenario.* The number of social interactions was significantly greater in the everyday memories ( $M = 3.50, SD = 1.66$ ) than trauma memories ( $M = 2.36, SD = 1.66$ ) overall,  $F(1,48) = 9.38, p < .01$ . Further, Asian subjects ( $M = 3.40, SD = 2.39$ ) had significantly more social interactions than did Australian subjects ( $M = 2.50, SD = 1.70$ ) in their memories overall,  $F(1,48) = 4.54, p < .05$ . There was no significant interaction between culture and narrative type for interaction scenario,  $F(1,48) = .36, p > .05$ .

*Reflective comment.* Reflective comments were significantly greater for the trauma memories than the everyday memories overall,  $F(1,48) = 18.16, p < .01$ . There was no significant difference between Asian and Australian students in reflective comments overall,  $F(1,48) = 3.59, p > .05$ . There was a significant interaction between culture and narrative type for reflective comments,  $F(1,48) = 8.75, p < .01$ , with

Australian subjects providing significantly more reflective comments in the trauma memory ( $M = 1.19, SD = 1.81$ ) than in the everyday memory ( $M = .27, SD = .87$ ),  $t(48) = 4.17, p < .01$ , whereas Asian subjects provided equal number of reflective comments for both trauma ( $M = .29, SD = .55$ ) and everyday ( $M = .13, SD = .34$ ) memories,  $t(48) = 1.45, p > .05$ . Australian students provided significantly more reflective comments than Asian students in trauma memories,  $t(48) = 2.34, p > .05$ , but equal number of reflective comments in everyday memories,  $t(48) = .76, p > .05$ .

*Memory specificity.* To examine culturally dependent differences in the memory specificity of the narratives, we used a chi-square with culture (Asian vs. Australian) and specificity classified as specific and general for each narrative type. The two groups differed in terms of trauma memory specificity distribution,  $\chi^2(1, N = 50) = 9.74, p < .01$ , compared with their Asian counterparts (37.50%), Australian subjects (80.77%) tended to provide more specific trauma memories. Unexpectedly, the two groups did not differ in terms of everyday memory specificity distribution,  $\chi^2(1, N = 50) = .01, p > .05$ . That is, both Asian (87.5%) and Australian subjects (88.46%) provided highly specific everyday memories. These results were evident even when depression was controlled for, given research (e.g., Williams & Scott, 1988) suggesting depression can impact on memory specificity.

*Self-defining memories.* Australian and Asian students provided an equivalent number of self-defining

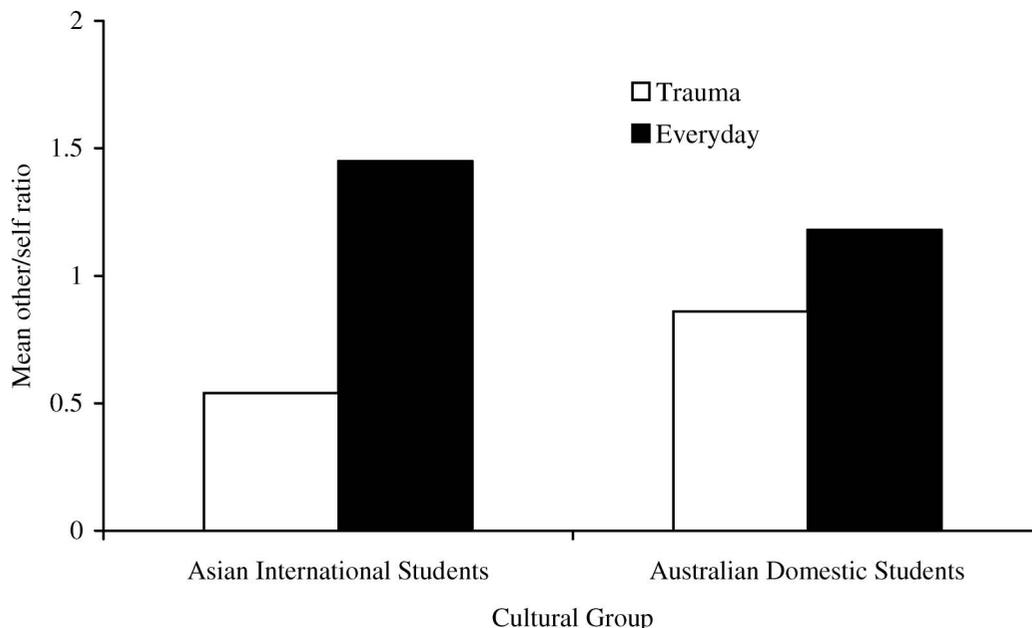


Figure 2. Mean other/self ratio of everyday and trauma memories for Asian international students and Australian domestic students.

memories, ( $M = 4.77$ ,  $SD = .51$ ;  $M = 4.92$ ,  $SD = .28$ , respectively),  $t(48) = 1.24$ ,  $p > .05$ , and their self-defining memories were equivalent in length (mean number of words:  $M = 18.05$ ,  $SD = 7.77$ ;  $M = 17.23$ ,  $SD = 7.18$ , respectively),  $t(48) = .39$ ,  $p > .05$ . There was no significant difference between the Australian students' trauma-theme ratio ( $M = .16$ ,  $SD = .17$ ) and the Asian students' trauma-theme ratio ( $M = .10$ ,  $SD = .10$ ),  $t(40) = 1.44$ ,  $p > .05$ .

There were moderate to strong positive correlations between the trauma ratio for self-defining memories and scores on the IES-R for the Australian subjects (IES-R total,  $r = .51$ , intrusions,  $r = .54$ , avoidance,  $r = .51$ , hyperarousal  $r = .27$ ). All these correlations for the Asian subjects were negative and, except for hyperarousal, weak (IES-R total,  $r = -.12$ , intrusions,  $r = -.03$ , avoidance,  $r = -.05$ , and hyperarousal,  $r = -.34$ ). The correlations differed significantly between Asian and Australian subjects (IES-R,  $Z_{diff} = 2.28$ ,  $p < .05$ ; intrusions,  $Z_{diff} = 2.09$ ,  $p < .05$ ; avoidance,  $Z_{diff} = 2.00$ ,  $p < .05$ ; hyperarousal,  $Z_{diff} = 2.08$ ,  $p < .05$ ).

## Discussion

Our results confirm expectations from SMS (Conway & Pleydell-Pearce, 2000) that because traumatic events by their nature activate an autonomous goal hierarchy or working self then the cultural distinction between autonomy versus relatedness orientation evident for personal remembering is not salient in autobiographical remembering of trauma. There was no cultural distinction in how Australian or Asian subjects remembered a personal traumatic event in terms of the memory's theme, degree of autonomous content or proportion of references to self or others. The results support the SMS suggestion that the working self is the prime regulator of autobiographical retrieval. Specifically, how a person remembers a traumatic event is predominantly guided by autonomous goals regardless of the dominant goal orientation of his or her culture.

At the same time, we found that the degree of disrupted adjustment to the trauma measured by symptom self-report was culturally specified. In particular, while we replicated earlier findings that stronger self-definition centred on trauma was positively related to severity of posttraumatic symptoms (Bryne et al., 2001; Sutherland & Bryant, 2006), we found that this was the case for Australian but not for Asian participants. For this latter group, there was either no relationship between disrupted adjustment and trauma-centred self-definition or, in the case of heightened arousal, a relationship between stronger trauma-centred self-definition and lesser degree of hyperarousal. This finding is important because it is the first evidence, to the

authors' knowledge, that casts credible doubt on the universal applicability of the clinical cognitive models of PTSD that propose that self-change towards a trauma-centred self predicts poor posttrauma prognosis and contributes to symptom maintenance (Brewin & Holmes, 2003; Conway, 2005; Dalgleish, 2004; Ehlers & Clark, 2000). This was true for participants from an independent orientated culture (Australian) but not for those from interdependent cultures (Asian). Our findings suggest that these models and their theoretical assumptions need to consider cultural factors in the nature of the conceptual self in any theoretical reformulation. Given that Asian people do suffer from PTSD, models need to further explore processes other than trauma's impact on self-definition. While various experiences subsequent to the trauma will be influential, our results suggest that cultural practices that downplay reminiscing about experiences of the autonomous self in favour of a discussion about social interactions, activities and social norms are important factors in understanding the maintenance of posttraumatic distress in people from interdependent cultures.

To extend external validity and clinical inferences, a second study examining self-definition in migrants, refugees and members of the general community with and without PTSD, from interdependent and independent cultures is currently under way. If our findings are robust we believe that the clinical implications are significant. In particular, they would question the relevance of the focus on the self-referential thinking that is an integral part of assessment and treatment in cognitive therapy for posttraumatic distress, for example, it would suggest a lesser role for cognitive reframing of self-schema for those from Asian cultures. In contrast the findings would support greater consideration of culture factors that maintain avoidance, and the assessment of opportunities for therapy or self-initiated exposure to memories of the trauma. This may present a considerable challenge for people for whom the dominant cultural practice is to emphasise relatedness at the expense of self-focused remembering characteristic of personal memories of trauma.

Contrary to the Wang and Conway (2004) finding that Chinese participants more frequently contained reflective comments in their everyday memories, our research found no cultural differences in the number of reflective comments made in everyday memories. This may be the result of Wang and Conway (2004) requesting participants to recall 20 memories from any period of their lives, but the present study gave specific instructions to retrieve an event from the weekend. It seems likely that retrieving a memory of what one did on the weekend would be less likely to generate reflective comments than that of salient life

memories. What did differ, however, was that Australian students provided significantly more reflective comments than Asian students in trauma memories. This may be because the trauma memory, as an autonomous memory, concurs with the Australian subjects' autonomous life story but is disjunct from the Asian subjects' relatedness, collective story, mores and worldviews, resulting in less opportunity and resources for reflection in Asian participants' narratives. The implication of this finding is interesting because reflective comments may allow contemplation, contextualisation and exposure to the trauma memory. It also may allow meaning and a shifting of goals, which would aid in trauma memory integration. Second, previous research (e.g., Han et al., 1998) has found that even when people are explicitly asked to recall specific events, Asian subjects still tend to provide general memories. In this study no cultural differences in everyday memory specificity was found. It is suggested that this be the result of very clear instructions, which asked participants to write about one event they did on the weekend.

Worth noting also is the finding that Asian subjects scored significantly higher on IES-R than did Australian subjects. Ho (1999) found that in a non-clinical undergraduate sample foreign-born participants scored higher on the IES than did U.S. participants. He argued that this was partly the result of acculturation issues adding stressors to immigrants' lives. However, it would be expected that such issues would also impact on depression and anxiety scores, which were not tested for in the Ho (1999) study. Consequently, we found no cultural differences in anxiety and depression. It is possible that the IES-R may be culturally insensitive. Alternatively, the trauma memory may be less integrated in Asian subjects' life story than in Western subjects' life story, resulting in more intrusions and distress. This lack of integration may be the result of fewer reflective comments reducing the contextualisation and integration of the memory, and/or Asian participants processing trauma using the autonomous working self, making integration into a predominantly relatedness life story more difficult. Alternatively, Asian subjects tended to report traumas linked to academic failings, peer rejection and family rejection. Given that the Asian subjects were international students, existing in an overseas university environment, this may result in salient, emotionally charged academic trauma memories, and separation from friends/peers and family may increase the salience and emotional distress associated with peer rejection and family-related trauma memories.

The limitations of this study are acknowledged. First, the size and nature (university students) of the sample limits the clinical interferences from these

findings. Second, as in any study exploring the impact of culture on certain variables, language and task understanding must be considered. The findings of no cultural differences in (a) the self-report of task difficulty, and (b) university-standard English language competency, were taken collectively to suggest that there were no major cultural differences in task understanding and responding. Third, the Western cultural environment that this study was conducted in, and the international student status, often accompanied by high education and good resilience, of the Asian students, may have impacted on findings. Further, although we found no cultural differences in the type, importance, perceived impact and time of the trauma, the study would be improved if trauma type was more tightly controlled and matched across groups. Finally, Asian international students were considered as a single, collectivistic population. Although, according to Hofstede and Hofstede (2004) all Asian cultures represented in this study are located on the collectivism end of the continuum and Australia on the extreme individualism side, it is worth exploring Asian cultures separately in future research, and our next study incorporates a measure controlling for independence/interdependence.

In sum, our findings indicate the cultural distinction between individual versus relatedness orientation are evident in everyday memories but not in trauma memories. More importantly, we found that disrupted adjustment to trauma is related to stronger self-definition centred on trauma for Australian but not for Asian subjects. In addition to its specific theoretical aims, our study takes up the problem of the gross cultural imbalance in clinical psychology research that often assumes that Western conceptual models and the diagnostic tools and treatments, which are developed from them, are applicable across cultures. Our study explores this assumption and its findings highlight the cultural specificity of theory and practice in clinical psychology and the general need to refine preventions, early interventions and treatments to make them more culturally appropriate.

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