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# The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review

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**Abstract**

This review provides a comprehensive and critical summary of the literature as to the development and maintenance of post-traumatic stress disorder (PTSD) following civilian war trauma and torture. Prevalence rates are reviewed and predictors are discussed in terms of risk factors, protective factors, and factors that maintain PTSD. Most epidemiologically sound studies found relatively low rates of PTSD. There is good evidence of a dose–response relationship between cumulative war trauma and torture and development and maintenance of PTSD. There is also some evidence that female gender and older age are risk factors in development of PTSD. Some refugee variables may exacerbate symptoms of PTSD and contribute to their maintenance. Preparedness for torture, social and family support, and religious beliefs may all be protective against PTSD following war trauma and torture. Applicability of the concept of PTSD to non-western populations and areas for much needed further study are discussed.


**Contents**



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## 1. Background

Warfare and torture occur on a large scale in many countries resulting in widespread death and disability (Silove, 1999). According to Amnesty International (1997), human rights violations have been recorded in over 150 countries worldwide and the number of civilians affected by war in comparison to military personnel is rising (International Federation of Red Cross and Red Crescent Societies, 1998). War can lead to a range of severely traumatic experiences among civilian populations. For example, feeling that one's life is endangered, witnessing extreme violence, separation from ones family, or being detained in a concentration camp (Dahl, Mutapcic, & Schei, 1998). Torture also occurs in the midst of war and often in countries where human rights violations are commonplace. The purpose of torture is to produce psychological change through coercion, repression, punishment or humiliation (Ramsay, Gorst-Unsworth, & Turner, 1993). Both war and torture often occur in the context of a break down in civil order. Therefore, many of those who have experienced these traumas have often also been subjected to years of discrimination, persecution, and forced exile (Gorst-Unsworth & Goldenberg, 1998).

Post-traumatic stress disorder (PTSD) was first recognized following the devastating effects that war experiences had on soldiers serving in Vietnam. It is a condition resulting from exposure to a life threatening event that is processed in such a way as to produce a sense of current threat (Ehlers & Clark, 2000). This leads to the experience of symptoms which fall into three clusters and define PTSD: intrusive symptoms, avoidance symptoms and symptoms of over arousal (DSM IV TR: American Psychological Association, 2000; ICD 10: World Health Organisation, 1992). The concept of PTSD has been successfully applied in assessment and treatment following many types of traumatic experience. However, its applicability to non-western populations (including refugees who have often experienced multiple and severe traumas over prolonged periods) is controversial and is discussed later on in this review.

Meichenbaum (1994) urges caution in reviewing the data on PTSD in that there may be differences in post-trauma responses between veteran and civilian populations. Whereas soldiers are trained to expect combat, for civilians such experiences can shatter their assumptions about safety. Accordingly, civilians can experience a higher frequency of intrusive recollections and less emotional numbing. For soldiers on the other hand, survivor guilt and emotional numbing are more common. Although war and torture can cause extensive psychological damage to both civilians and military groups, the former has been neglected in previous reviews of the literature.

## 2. Aims

Despite the possibly wide ranging and complex psychological effects of torture and war trauma (Gorst-Unsworth & Goldenberg, 1998), this review will focus on PTSD because this condition has been most commonly studied in relation to these atrocities (Rosner, Powell, & Butollo, 2003).

This review will comprehensively and critically assess the literature regarding the prevalence and predictors of PTSD following civilian war trauma and torture. It will therefore expand on the illustrative selection of studies reviewed by Silove (1999) to support his model describing the psychosocial effects of torture and related abuses. Discussion of the literature regarding psychological treatment is outside the scope of this review and has been covered previously with reference to PTSD in refugees by Nicholl and Thompson (2004).

## 3. Search strategy and inclusion/exclusion criteria

Extensive electronic searches of the PsychInfo, Web of Science and PILOT data bases were conducted within the date parameters of 1970–2005 using the terms: PTSD; civilian; prevalence; refugee; epidemiology; war and torture. Manual searches of the bibliographies of articles and of the Journal of Traumatic Stress were also conducted. Forty eight studies were found pertaining to the development and maintenance of PTSD in civilian survivors of war trauma and torture (see Appendix A for a summary).

Studies sampling veterans and studies written in a language other than English were excluded from this review. For systematic reviews of the effects of trauma in war veterans and holocaust survivors see Gerrity, Keane, and Tuma (2001). Studies presenting evidence representing expert opinion (such as case studies) were also excluded on the basis that they appear low down on the 'hierarchy of evidence' adopted by the National Service Framework for Mental Health (Department of Health, 1999).

## 4. The prevalence of PTSD in civilian adult survivors of war trauma and torture

Studies reporting prevalence of PTSD following torture and war trauma vary in their sampling and assessment methods. Some studies are conducted on site in the country where the trauma has occurred, other studies examine refugee or displaced populations. Some studies report current levels of PTSD whereas others assess for PTSD over the course of a life time (see Appendix A for a summary).

### *4.1. Tortured refugee or displaced populations*

Several studies have looked at torture alone when examining the prevalence rates of PTSD. Unsurprisingly, studies that found the highest rates of PTSD looked at clinical populations and investigated the presence of PTSD over an extended period of time. For example, Moisander and Edston (2003) compared refugee torture victims from six different nations and found that PTSD ranged from 69–92% across all patient groups. Similarly, Wenzel et al. (2000) found a prevalence rate of 91% measured over three years in their study of exiled survivors of torture. Mollica, Mcinnes, Pham et al. (1998), Mollica, Mcinnes, Poole et al. (1998) in their study of Vietnamese ex-political detainees who had had contact with their Indochinese psychiatry clinic found the rates of current PTSD following torture to be 90%. Priebe and Esmaili (1997) included treatment seekers in their sample and found a prevalence rate of 53% for current PTSD in their study of the mental sequelae of torture in Iran. However, non-random sampling techniques and small sample sizes used in these studies limit their generalisability. Furthermore, those going through the asylum process might be motivated to exaggerate trauma exposure and PTSD symptoms so as not to be sent back to their country of origin.

Ramsay et al. (1993) found only 31% of their clinical sample of torture survivors had current PTSD. However, PTSD was diagnosed retrospectively from case notes that were likely to be incompletely recorded. Nevertheless, another relatively low rate of PTSD (20%) was found by Eisenman et al. (2003) in their investigation of mental health among tortured Latino primary care patients in Los Angeles. Although this was a large scale well controlled study, the generalisability of their findings to other cities and populations is uncertain.

In contrast to the above studies, Shrestha et al. (1998), using a non-clinical population, studied the impact of torture on Bhutanese refugees displaced within Nepal and found a prevalence rate of only 14% for current PTSD. This was explained by the positive living conditions in the camps and the high degree of personal support caused by entire villages and families being displaced together.

### *4.2. Tortured community samples*

Studies conducted on site with community samples have found varying degrees of PTSD. Basoglu, Paker, Paker et al. (1994) and Basoglu, Paker, Ozmen et al. (1994) examined the psychological effects of torture in political activists and non-political activists in Turkey. Thirty three percent of their sample had life-time PTSD. However, Basoglu and Paker (1995) only found a prevalence rate of 18% for life-time PTSD in their study of the severity of torture as a predictor of long term psychological status. As they pointed out this relatively lower rate may be explained by referral biases in their sample selection. That is, participants with greater resilience and better psychological health may have

been over represented in their sample. Basoglu et al. (1997) investigated whether psychological preparedness for trauma is a protective factor in survivors of torture. That 85% of their entire sample had life-time PTSD could be explained by the study design. That is, the comparison group used in the study was selected because they were not prepared for torture and were therefore less protected against its adverse consequences.

### 4.3. Refugee and displaced populations affected by war trauma

The boundaries between war trauma and torture are blurred and inconsistent in the literature. Torture is often defined as one of many traumatic events associated with war. This makes comparison between studies difficult because prevalence rates of PTSD following torture specifically, may be higher than for other types of war trauma (Hondius et al., 2000). Numerous studies on refugee and displaced populations affected by various forms of war trauma have found very high rates of PTSD among participants. Three studies looked at prevalence of current PTSD in Kosovan refugees. Turner et al. (2003) and Ai, Peterson, and Ubelhor (2002) found 65% and 60.5% respectively using self-report measures, whereas Eytan et al. (2004) found only 23.5% in their sample using psychiatric interview. Dahl et al. (1998) using a self -report measure found a prevalence rate of 71% for current PTSD in their sample of displaced Bosnian women in a war zone.

Turner et al. (2003) argue that self-report measures over-estimate the prevalence of PTSD. Indeed, Cheung (1994) in a large scale study of post-traumatic stress disorder among Cambodian refugees in New Zealand ($N=223$) found a prevalence rate of only 12.1% for current PTSD using interview methods. Furthermore, Reppesgaard (1997) in another large scale study ($N=550$) found a 21% prevalence rate for current PTSD among displaced people in a war zone in Sri Lanka using interview methods. Mollica et al. (1999) using interview methods, found that 26.3% of their sample of 534 Bosnian refugees living in Croatia had current PTSD. Brune et al. (2002) and Boehnlein et al. (1985) found higher rates of current PTSD (77.1% and 58.3% respectively) using interview methods, although these higher rates might be expected as they both recruited their participants from clinical samples.

Michultka et al. (1998) using a diagnostic interview method to investigate civilian responses to war experiences found that 68% of their sample ($N=50$) had current PTSD. However, the authors acknowledge that this study was limited in number and scale. Hauff and Vaglum (1993, 1994) in larger scale studies using a combination of self-report and interview measures found that only 9% of their sample ($N=145$) of Vietnamese boat refugees had current PTSD on arrival in Norway. After three years they did a follow up and found that this had dropped to 4%. Thulesius and Hakansson (1999) screened for PTSD symptoms among Bosnian refugees using a self-report measure and found a prevalence rate of 18–33%. This finding, however, was greatly limited by the fact that their instrument was not diagnostic which meant that the authors could only give estimates of possible current PTSD. Sondergaard et al. (2001) found a prevalence rate of 37% for current PTSD in their sample of Iraqi and Kurdish refugees in Sweden using a combination of self-report measures and interviews methods. However, the authors acknowledge the possibility that participants may have had difficulty understanding the abstract terms used in assessment for PTSD.

Further findings of prevalence rates of current PTSD ranging from 10.7%–50% have been limited by small samples sizes (Allden et al., 1996; Drozdek, 1997; Gorst-Unsworth & Goldenberg, 1998; Mollica et al., 1987; Potts, 1994; Silove et al., 1997). Using a larger sample ($N=480$) Hondius et al. (2000) investigated health problems of Latin-Americans and Middle-Eastern refugees in the Netherlands. They found that only 6% had current PTSD. However, selection biases caused by recruiting from a primary health care setting may have limited the generalisability of the study.

### 4.4. Community samples affected by war trauma

As with the aforementioned studies, the prevalence rates of PTSD found on site following war trauma appear to vary considerably depending on the methodology employed by the study. Cardozo et al. (2000) and Cardozo et al. (2003) investigated the mental health of Kosovar Albanians immediately following the war in Kosovo and one year after the war had finished. They found PTSD prevalence rates of 17.1% and 25% respectively. Similarly, Gavrilovic et al. (2002) measured PTSD in Yugoslavian students one year after air attacks and found a prevalence rate of only 11%. Scholte et al. (2004) found a prevalence rate of 20.4% for current PTSD following war and repression in Eastern Afghanistan whereas Somasundaram and Sivayokan (1994) found 27% following the war in Sri Lanka. De Jong et al. (2001) measured life-time PTSD in four post-conflict settings and found 37.4% in Algeria, 28.4% in Cambodia,

15.8% in Ethiopia and 17.8% in Gaza. Bramsen and Van der Ploeg (1999) on the other hand, assessed for PTSD in a sample of civilian Dutch survivors of world war two 50 years after the end of the war. They found that only 4% had current PTSD.

Two studies, both using self-report measures, found higher rates of current PTSD. Cardozo et al. (2004) found 42% looking at mental health in post-war Afghanistan, whereas Abu-Saba (1999) found 75% among Beirut students who had been exposed to a high number of traumatic war events. Again, prevalence rates may be attributable to response biases. That is, because no structured clinical interviews were undertaken, the extent to which self-reported symptoms of PTSD would match clinical diagnosis was unclear. Rosner et al. (2003) investigated the prevalence of current PTSD three years after the siege of Sarajevo. They found 18% in their group of residents, 32.7% in their group seeking medical treatment and 38.6% in their group seeking psychological treatment. As the authors acknowledge, a sample consisting of 98 persons and a high rate of non-responders suggests that these findings should be interpreted cautiously. However, compared to similar studies this well controlled study represents one of the better estimates achieved.

### *4.5. Issues in the comparison of prevalence studies*

High variability in findings across studies makes it difficult to ascertain the true prevalence of PTSD in civilian survivors of war trauma and torture. Nevertheless, bearing in mind the high extent of trauma exposure and the possibility that the high figures in some studies are created by sampling bias, one could argue that the true prevalence rate is likely to be relatively low. Especially, in the context that approximately 25% of people develop PTSD following exposure to general forms of trauma (Green, 1996). However, caution should be urged in drawing overall conclusions from the above studies for a number of reasons. Studies looking at war and torture trauma often refer to many different types of diverse experience which may or may not be comparable across studies. Furthermore, the quantity and severity of traumatic experiences that participants have endured often varies considerably between studies. This is pertinent considering the evidence of a dose–effect relationship between trauma exposure and PTSD (Mollica, Mcinnes, Pham et al., 1998; Mollica, Mcinnes, Poole et al., 1998). A dose–effect relationship exists when the magnitude of a stressor is directly proportionate to the subsequent risk of developing PTSD (Meichenbaum, 1994). Studies which assess for current PTSD following war trauma and torture vary in the length of time between trauma exposure and diagnosis thus furthering the difficulty in comparing studies. Studies also use different instruments for diagnosis. Sometimes this reflects transition in the definition of pathology over time for example, a shift from DSM III R criteria to DSM IV criteria. Other times, comparison between studies is complicated by differences in criteria between clinical and research diagnoses. Finally, civilian survivors of war trauma and torture discussed in the literature are heterogeneous in terms of their national and cultural origins. Prevalence rates for PTSD may vary between these countries and cultures (Moisander & Edston, 2003).

## 5. Risk factors in the development of PTSD in civilian survivors of war trauma and torture

### *5.1. Dose–response relationship*

Few studies have investigated the risk factors for developing PTSD following torture as a distinct variable. Three studies have documented a dose–effect relationship between cumulative torture experience and PTSD. Mollica, Mcinnes, Pham et al. (1998), Molloca, Mcinnes, Poole et al. (1998) found this relationship in their sample of Vietnamese ex-political detainees. However, their measure of cumulative torture did not take into account qualitative differences in the kinds of torture or quantitative differences in the frequency or duration of each torture event. The instrument used by Shrestha et al. (1998), in their study of Bhutanese refugees, measured these variables. However, there were some difficulties in the reliability of a PTSD diagnosis since an alternative explanation for torture survivor's affective symptoms were that they were the result of infectious diseases caught whilst in prison. ElSarraj et al. (1996) in a large scale study ($N=550$) using qualitative and quantitative measurements of trauma, investigated experiences of torture among Palestinian political prisoners. They found that increased exposure to physical, chemical and electric torture, psychological ill-treatment, and sensory deprivation and bombardment resulted in increased intrusive reexperiencing, withdrawal, numbness, and hyperarousal.

There is a wealth of evidence to support the existence of a dose–effect relationship between diverse forms of cumulative war trauma and PTSD severity (Abu-Saba, 1999; Ai et al., 2002; Cardozo et al., 2000; Cheung, 1994; Dahl

et al., 1998; Michultka et al., 1998; Rosner et al., 2003; Scholte et al., 2004; Silove et al., 1997). As mentioned earlier, many of these studies are limited by their use of self-report measures rather than diagnostic clinical interviews to identify the presence of PTSD (Abu-Saba, 1999; Ai et al., 2002; Cardozo et al., 2000; Dahl et al., 1998; Scholte et al., 2004). However, although limited in scale, Michultka et al. (1998) and Rosner et al. (2003) did use diagnostic clinical interviews and Silove et al. (1997) used a combination of diagnostic clinical interviews and self-report measures. Cheung (1994) also used interview methods and the study was not limited in scale ($N$=223). This study identified a positive relationship between the amount of trauma and PTSD among Cambodian refugees in New Zealand. Besides the issue of validity in identifying the presence of PTSD, many of these studies are also limited in their assessment of the 'dose' which is often based on retrospective self-report of trauma exposure. McNally (2003) argues that these reports can be affected by clinical state thereby inflating the magnitude of the dose–response effect. However, despite the methodological limitations of many of these studies, taken together they indicate a consistent correlation between the amount of war trauma experienced and the severity of PTSD.

### 5.2. Gender

Most of the studies examining gender differences in civilian responses to war trauma suggest that females are more likely to develop PTSD than males (Ai et al., 2002; Ekblad et al., 2002; Eytan et al., 2004; Gavrilovic et al., 2002; Mollica et al., 1987; Potts, 1994; Reppesgaard, 1997; Scholte et al., 2004). Mollica et al. (1987) and Ekblad et al. (2002) suggest that the females in their samples may have been at higher risk because of the psychological consequences of rape, the violent loss of spouse and children and of becoming a single parent or widow. The majority of these studies used self-report instruments rather than diagnostic clinical interviews (Ai et al., 2002; Ekblad et al., 2002; Reppesgaard, 1997; Scholte et al., 2004). Eytan et al. (2004) however, looked at determinants of post-conflict symptoms in Albanian Kosovars using a large sample ($N$=996) and psychiatric interviews. They found that female gender was significantly associated with higher frequency of PTSD. Two studies found no gender differences (Abu-Saba, 1999; Ramsay et al., 1993). However, both of these studies were prone to potential response bias caused by the use of self-report measures (Abu-Saba, 1999) and the diagnosis of PTSD from case notes in which PTSD symptoms may have been incompletely recorded (Ramsay et al., 1993). None of the above studies controlled for trauma type when investigating gender differences.

### 5.3. Age

Cardozo et al. (2000) found that those over the age of 65 were at increased risk of developing PTSD following the war in Kosovo. Although the reliability of this finding may have been limited by the use of self-report measures, it was supported in a study by Eytan et al. (2004) who investigated determinants of post-conflict symptoms in Albanian Kosovars. The finding was also supported by Cheung (1994) who investigated PTSD among Cambodian refugees in New Zealand. Dahl et al. (1998) on the other hand found that being over 25 years of age predicted PTSD in their sample of displaced Bosnian women in a war zone. As with gender studies, these studies did not control for trauma type when investigating age as a risk factor.

### 5.4. Refugee variables

Few studies have examined various refugee variables in relation to the development of PTSD. De Jong et al. (2001) studied PTSD in four post-conflict settings. Although limited by self-reported data and non-random sampling techniques, they found that poor quality of refugee camp was associated with PTSD in Algeria and Gaza. The same limitations apply to a study by Silove et al. (1997). They found that a diagnosis of PTSD was associated with delays in processing refugee applications, difficulties in dealing with immigration officials, obstacles to employment, racial discrimination, loneliness and boredom. Hondius et al. (2000) investigated health problems among Latin-American and Middle-Eastern refugees in the Netherlands. They found that incidence of PTSD was higher if the duration of stay in the host country was less than one year and if legal refugee status was not possessed. However, case notes were analysed retrospectively to measure PTSD status casting doubt on the reliability of the diagnosis. Furthermore, their non-random sampling from a specific primary health care centre limits the generalisability of their findings. Michultka et al. (1998) found that involvement in the legalisation process predicted PTSD severity.

## 6. Protective factors in the development of PTSD in civilian adult survivors of war trauma and torture

A series of studies have investigated protective factors in torture survivors in Turkey. Basoglu, Paker, Ozmen et al. (1994), Basoglu, Paker, Paker et al. (1994), Basoglu et al. (1996, 1997) consistently found that preparedness for torture is a protective factor in terms of the distress experienced during torture and the development of subsequent PTSD. Furthermore, contrary to the dose–effect findings of previously mentioned studies, Basoglu, Paker, Ozmen et al. (1994), Basoglu, Paker, Paker et al. (1994) suggested that repeated exposure to trauma may result in immunization against traumatic stress. Perhaps less surprisingly, social support was also found to have protective value against PTSD in torture survivors. The generalisability of these findings to civilian torture survivors in general is limited by the fact that the studies were all conducted in Turkey. Furthermore, high rejection rates for participation from people with more severe torture related symptoms meant that survivors with greater resilience may have been over represented in the samples.

Allden et al. (1996) in their study of Burmese political dissidents in Thailand found that camaraderie and a Buddhist concept of self-confidence were protective factors against the psychological effects of interrogation, imprisonment, threats of deportation, and torture. The authors urge caution in interpreting their findings given their non-random 'snow ball' sampling techniques, their cross-sectional design and issues around the accuracy and reliability of participants responses gained from self-report measures. However, their finding that Buddhist beliefs can protect against PTSD is supported in a study by Cheung (1994) on PTSD among Cambodian refugees in New Zealand. Here, it was found that those who had strong Buddhist beliefs in reincarnation, fate, and the meaning of suffering were able to accept their trauma and suffering as necessary challenges to enable a better state of being in the next world. They were therefore protected from the development of PTSD. Scholte et al. (2004) studied mental health symptoms following war and repression in Eastern Afghanistan. Although not analysed as protective factors, they found that respondents valued "Allah" (the Islamic god) as their main resource for emotional support when feeling sad, worried, or tense. Their second preferred resource was family support.

Brune et al. (2002) found that a firm belief system was an important predictor of therapy outcome in 141 traumatized refugees. However, this study was greatly limited by the absence of a control group. Sondergaard et al. (2001) in their longitudinal study on Iraqi and Kurdish refugees in Sweden found that family reunion had a positive effect on symptoms of PTSD. The authors acknowledge however, that participants may have had difficulty in understanding the abstract terms used in their questionnaire.

## 7. The maintenance of PTSD in civilian adult survivors of war trauma and torture

Only two studies looked at the maintenance of PTSD following torture specifically. Basoglu, Paker, Ozmen et al. (1994) and Basoglu and Paker (1995) examined long-term traumatic stress response in survivors of torture in Turkey. The mean time since release from captivity was 41 months. They found that long term PTSD was not predicted by the frequency of exposure, but by the perceived severity of the torture. In addition, Basoglu, Paker, Ozmen et al. (1994), Basoglu, Paker, Paker et al. (1994) found that the impact of captivity experience on family was the strongest predictor of PTSD symptoms explaining 25% of the variance. The authors acknowledge however, that the possible over representation of survivors with greater resilience, due to referral biases, may have obscured the relationship between torture severity and PTSD.

The majority of studies have investigated the association between the maintenance of PTSD and diverse variables following trauma such as family and social relationships and the pressures of exile and displacement. Lie (2002) conducted a 3-year follow-up study of psychosocial functioning and general symptoms in settled refugees. Post-migration stressful events such as unemployment and lack of social contacts predicted the maintenance of PTSD symptoms. Although limited by the use of symptom scales rather than clinical diagnosis, similar findings have been made in other studies. Steel et al. (1999) found that health, welfare, and asylum difficulties; adaptation difficulties; and loss of culture and support maintained post-traumatic symptoms. However, in their measurement of post-traumatic symptoms no cut-off point was used to indicate PTSD. Gorst-Unsworth and Goldenberg (1998) provided support for claims that level of social support is important in influencing long term response to trauma. They found in their sample of refugees from Iraq that severe PTSD in exile could be predicted by low levels of 'affective' social support. However, they had no access to details of participants' psychological health prior to their arrival and the sample may have represented a selected group as only 5% could be traced for interview. Nevertheless, their finding is supported by

Drozdek (1997) who found that, even after treatment and 3 years after the traumatic event, persistence of PTSD could be predicted by fewer social contacts. Boehnlein et al. (1985) looked at factors maintaining PTSD in a sample of Cambodian survivors of concentration camps who had been through treatment. They found that PTSD symptoms were exacerbated by work or academic pressures. These findings are limited by the small size of the sample ($N=12$) and the fact that no control group was used.

Two studies investigated the dose–effect relationship of trauma on long term PTSD. Hauff and Vaglum (1994) found that reactions to more extreme traumatic events (concentration camp experiences and torture) run an even more chronic course than other forms of trauma. In a large scale study ($N=993$), Mollica, Mcinnes, Poole et al. (1998) found that cumulative trauma continued to affect symptom levels of PTSD a decade after the original traumatic events. However, this study lacked objective measurements of trauma events. Also, the cross-sectional design employed prevents appreciation of any changes in dose–effect responses over time.

## 8. The cross-cultural applicability of PTSD

Civilian survivors of war trauma and torture described in the literature largely originate from non-western cultures. Attempts have been made in some of the above studies to validate instruments by translating and back-translating into the language used among the study population (Cardozo et al., 2000; Scholte et al., 2004). Psychometric properties have also been gained for the use of some measures in the relevant countries (ElSarraj et al., 1996). Some authors defend their instruments by asserting that criteria for PTSD have been found to be useful to diagnose PTSD across different cultures (Cheung, 1994).

However, instruments used to assess the presence of PTSD in the above studies may still not accurately reflect traumatic stress symptoms within non-western cultures. This is because PTSD symptoms may have different value or meaning in different cultures and some symptoms may not be perceived as distressing (Nicholl & Thompson, 2004). Indeed, Shrestha et al. (1998) acknowledge limitations in applying a label of PTSD in cultures where this diagnosis has not been validated and argue that this limitation is true for most research on refugees. This argument has been backed by other authors. Bracken, Giller, and Summerfield (1995) and Silove (1999) questioned the validity of applying a western based 'trauma model' and the label post-traumatic stress disorder (PTSD) to people from non-western cultures. They argue that 'PTSD' may reflect a western medicalisation of responses to trauma and is a highly individualized model of suffering, focusing on psychological distress. Such a model may only be of limited salience to non-western populations. Watters (2001) points to the sustained and growing critique of the way that PTSD has been ascribed to non-western and specifically, refugee populations. This has resulted in scant attention to the social, political and economic factors that play a fundamental role in refugee's experience. Indeed, studies described in this review have used western criteria and assessment instruments to diagnose the presence of PTSD. Marsella, Friedman, and Spain (1992) assert that these criteria are ethnocentric and biased. Cross-cultural research should consider indigenous expressions of disorder and idioms of distress. Assessment instruments should consider cultural norms, language and concepts, and be based on the meaning that the post-traumatic experience holds for the non-western survivor. As yet this is an area for further investigation (see below). The overwhelming majority of studies to date have omitted such considerations. Marsella et al. (1992) argue that this can result in false positives and false negatives, as well as misunderstandings of the PTSD experience.

Interestingly, manifestations of distress following trauma in western countries may have changed over time in parallel with cultural attitudes. Jones, Woolven, Durodie, and Wessely (2004), reviewed history journals findings on resilience among British civilians bombed during world war two. Although rates of reported mental illness (and symptoms consistent with PTSD) were low, it is possible that they were interpreted as organic disorders rather than mental illness. It is also possible that civilians were extremely resilient against symptoms consistent with PTSD in the context of this large scale conflict.

## 9. Discussion

Research pertaining to development and maintenance of PTSD in civilian survivors of war trauma and torture has been described and evaluated (see Appendix A for a summary of studies). In addition to difficulties with the application of PTSD to non-western groups, methodological difficulties have included small sample sizes and non-random focus on specific populations. This has limited the generalisability of findings. Studies have also been limited by the use of

self-report measures and symptoms scales rather than clinical diagnoses. This increases the likelihood of potential reporting bias and is particularly noteworthy given the sensitive nature of the information being collected and the potential stigma attached to the disclosure of mental health problems (Allden et al., 1996). Findings that are based on retrospectively analysed case notes and studies that have not included a control group are unreliable. General obstacles encountered when conducting research in this area have included language barriers and the use of instruments that have not been standardised with the relevant population. Furthermore, many studies reported high attrition rates which may reflect the transient nature of the populations studied.

Most methodologically sound epidemiological studies, albeit defining post-traumatic responses by western values, have found relatively low rates of PTSD among survivors of war trauma and torture. This is surprising given that many of the traumatic events experienced by participants in the studies reviewed here were severe, sudden, prolonged, repetitive and intentional. Meichenbaum (1994) argues that these types of stressors were more likely to produce PTSD.

There appears to be consistent evidence of a dose–effect relationship between cumulative trauma and the development and maintenance of PTSD. This is consistent with findings from research involving western samples (Meichenbaum, 1994). There is also some evidence that females are at higher risk than males for developing PTSD. However, it is possible that gender differences relating to PTSD in non-western samples are attributable to the differences in traumas experienced rather than anything inherent to gender itself. Indeed, Pimlott-Kubiak and Cortina (2003) found in a western sample that the apparently increased vulnerability of females to developing PTSD could instead be linked to differences in exposure history between males and females. There is also some evidence that those of older age are more at risk of developing PTSD. Again however, age differences may be attributable to differences in the type of trauma experienced rather than anything inherent to age itself. Although there is a dearth of studies investigating the impact of refugee variables on the development of PTSD it is likely that variables such as uncertain refugee status and obstacles to employment and lack of social support exacerbate symptoms and contribute to their maintenance.

It may be that protective factors play an important role in determining the psychological effect of war trauma and torture. Preparedness for torture and subsequent social support may decrease the likelihood of developing PTSD. Family support and religious beliefs may also be important in protecting against PTSD following general war trauma. Preparedness for trauma as a protective factor can be seen in the context of the finding that unexpected traumatic events are more likely to produce PTSD (Meichenbaum, 1994). There is also a wealth of western based evidence consistent with the finding that social support can be helpful in managing post-traumatic responses (Yule, 1999). One explanation for the apparent protective value of religious beliefs against the development of PTSD is that religious beliefs may help the individual to make external attributions for the traumatic event, for example the belief in Islamic faith that trauma is the ‘will of god’ or the Buddhist belief in fate. Indeed in shipping disasters, passengers who attributed the bad things that happened during the sinking to themselves and their actions had more symptoms of PTSD (Joseph, Brewin, Yule, & Williams, 1991; Joseph, Yule, Williams, & Andrews, 1993). Foa and Rothbaum (1998) in their emotional processing theory of PTSD emphasize how negative self appraisals regarding the trauma can exacerbate perceptions of incompetence thus increasing vulnerability to PTSD. Attributing the trauma to religion rather than to the self, may have helped individuals avoid these perceptions of the self as incompetence.

An awareness of these predictive factors is important in the assessment and treatment of civilian survivors of war and torture. Clinicians should pay attention to the spiritual and culturally specific beliefs held by clients and where appropriate, facilitate support in dealing with the practical issues around resettlement in a new and unfamiliar country. Particular attention should be paid to clients’ indigenous expressions of disorder and distress and to the value and meaning which they ascribe to post-traumatic symptoms and experiences rather than focusing on the application of diagnostic categories.

## 10. Areas for further research

As suggested above, it is possible that rates of PTSD vary with the sampling method employed by the study. Further research may therefore investigate differences in risk of developing PTSD and prevalence of PTSD between refugees and community samples affected by similar traumas. Furthermore, whether there are differences in the traumas experienced between these two groups.

The finding in a western sample that the apparently increased vulnerability of females to developing PTSD could instead be linked to differences in exposure history between males and females (Pimlott-Kubiak & Cortina, 2003) has

yet to be replicated in non-western samples. There is also a need for research that controls for trauma type in investigating the relationship between vulnerability to PTSD and age. The validity of such studies, however, will depend on the measures used to assess PTSD. If using existing measurements of PTSD it is necessary to collect norms for the relevant populations studied and to translate the instruments into the relevant languages. To reduce the likelihood of response bias it is also important to assess for PTSD using clinical diagnosis rather than symptom scales and self-report measures. Despite difficulties in studying transient populations described above, it is also important to use large scale random sampling methods.

Much further research is necessary in order to clarify the role of predictive factors in the development and maintenance of post-traumatic stress following war trauma and torture. For example, the protective value of different religious beliefs against specific post-traumatic symptoms and the predictive value of variables such as ethnicity and different cultural beliefs. In order to do this it is important to address indigenous manifestations of suffering in non-western survivors rather than imposing a western value system on their post-traumatic experiences. However, the meaning that trauma and post-traumatic experiences hold among non-western survivors has not yet been investigated. Qualitative studies may therefore be appropriate to address this and may form the basis for further research into PTSD following war and torture in non-western groups.

One difficulty in conducting such cross-cultural research is the requirement of the participant to reflect on the cultural context of their experience. Clearly, for somebody with little or no experience of western culture, this would be problematic. One solution may therefore be to sample interpreters. Ravel (2002) describes how interpreting includes taking on the role of 'cultural broker' or 'cultural consultant'. That is, the interpreter's job is to explain the cultural context to the clinician or service user. Arguably, then, refugee interpreters who have been through trauma are in an excellent position to be able to reflect on the cultural context of their experience.

Interpreters may hear people recount their experiences of torture and life threatening events leading up to flight from their countries of origin. In translating these accounts there is little time for emotional processing of the material or discussion of the issues raised (Tribe, 1999). Tribe reported on a supervision group for interpreters of refugees. She suggested that the most important issue raised in the group related to interpreters' experiences of being, on occasions, emotionally overwhelmed by the material, or a fear of being overwhelmed. Further study may therefore investigate how doing the job of interpreter might interact with the interpreter's experience of living with personal trauma.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.cpr.2007.01.017.

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