Post-traumatic stress after terrorist attack: psychological reactions following the US embassy bombing in Nairobi

Naturalistic study

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Background Most studies of post-traumatic stress disorder following terrorist attacks are of small samples in industrialised nations and take place months or years after the incident.

Aims To describe reactions following the US embassy bombing in Nairobi and the characteristic features of and risk factors for post-traumatic stress symptoms in a large, non-Western sample soon after the attack.

Method A self-report questionnaire which assessed potential risk factors and identified symptoms matching DSM–IV criteria for post-traumatic stress disorder was answered by 2883 Kenyans, 1–3 months after the bombing.

Results Symptoms approximating to the criteria for post-traumatic stress disorder occurred in 35%. Factors associated with post-traumatic stress included female gender, unmarried status, lack of college education, seeing the blast, injury, not recovering from injury, not confiding in a friend, bereavement and financial difficulty since the blast. Many other factors were not significant.

Conclusions Specific factors often cited to predict marked short-term post-traumatic stress were confirmed in this large, non-Western sample.

Declaration of interest None. Funding detailed in Acknowledgements.

On 7 August 1998, terrorists detonated a tonne of explosive outside the US embassy in Nairobi, Kenya. The blast killed over 200 people and approximately 5000 others were hospitalised for their injuries. Six days later the Kenya Medical Association initiated Operation Recovery, a coalition of organisations and individuals that helped Kenyans recover from the tragedy. Between 1 and 3 months after the attack, Operation Recovery gave questionnaires to 2883 Kenyans affected by the blast (futher details available from the authors upon request). Post-traumatic stress disorder (PTSD) resulting from terrorism has been examined in over a dozen studies of incidents in Ireland, Israel, France, the USA and Tanzania. However, it is difficult to draw conclusions about the characteristics of, and risk factors for, PTSD based on this research (Gidron, 2002). For the large, non-Western sample in this study, we predicted that the most consistently reported PTSD risk factors (e.g. injury, female gender and direct exposure) would be associated with post-traumatic symptoms.

METHOD

Sample

The population studied was a non-random, opportunistic sample of 2883 Kenyans questioned 1–3 months after the terrorist attack. The blast occurred on a weekday morning in the centre of Nairobi's financial district. Responses to the questionnaire were obtained from individuals in three settings: patients attending a mental health clinic devoted to those affected by the blast; employees in nearby office buildings whose companies had requested mental health outreach; and people who visited mental health information stations at various expositions and rallies (such as the annual agricultural show) in the months after the incident. A list was compiled of all employees in the office blocks surrounding the embassy who were at work during the blast and they were invited to participate in the study. Data were not collected concerning the particular setting in which the participants completed the questionnaire. All individuals provided informed consent for confidential research testing. A group of 2627 responses was available for analysis, based on the number of respondents who furnished complete answers to the PTSD symptomatology series of the questionnaire.

Instrument

The questionnaire was a nine-page, 57-item, English-language self-report instrument and was administered by personnel trained to help respondents with language or content comprehension (very few respondents required such assistance). It was an unvalidated instrument constructed within the first month after the attack with the assistance of international agencies and trauma experts. There were five parts: the first (11 questions) dealt with demographic factors, including age, gender, number of children and dependants, educational level, religion and occupation. Part two determined the level of exposure, with five questions relating to the person's location at the time of the blast and whether the person had experienced it directly or first heard about it through conversation or the media. Part three asked detailed questions about injuries, initial treatment and pregnancy: injuries were divided into body part affected (eyes, face, hearing, head and neck, limbs, trunk and genitals) and further divided by severity (from 'minor cuts and bruises' to 'loss of body part'; paralysis was handled separately); ten questions were concerned with medical care (location of treatment, method of transportation, assessment of care received and continuing medical sequelae); pregnancy was addressed by six questions detailing month of pregnancy, complications immediately succeeding the blast, assistance received and outcome or current status of pregnancy. The fourth part comprised a number of questions designed to assess PTSD symptoms; in addition, it addressed substance misuse, attack-related conversation and counselling, and bereavement. For this study, the PTSD symptomatology portion of the questionnaire was rearranged into 21 'yes/no' questions that matched most of the criteria specified by DSM–IV (American Psychiatric Association, 1994), although there was no question equivalent

to criteria B5, C3 or C7. For example, participants were asked whether since the bombing they were 'having dreams of the bombing' (criterion B2), 'finding it harder to be with family/friends/workmates' (criterion C5) and 'sleeping less' (criterion D1). A 'caseness' algorithm was used such that responses including at least one criterion B (re-experiencing) symptom, three criterion C (avoidance/numbing) symptoms (including at least one of criteria C1 and C2 and one of C4 to C6) and two criterion D (hyperarousal) symptoms all together satisfied the criteria for 'post-traumatic stress symptomatology' (PTSS) – our approximation to the PTSD diagnosis. Criterion A symptoms (fear, helplessness or horror in response to a significant trauma) were not part of the algorithm, but were included in the analysis for validation; there was an 11% rise in the prevalence of post-traumatic stress symptoms when criterion A symptoms were excluded from the algorithm (see Results). Also not included in the algorithm was a formal assessment of subsequent distress or functional impairment. The questions relating to substance misuse asked about increased use of alcohol, cigarettes and 'drugs (e.g. *bhang*)'. Six questions about attack-related conversation and counselling specified the source of support, e.g. friend/workmate, family, religious leader, psychologist. The three bereavement questions asked about the relationship to the deceased and what problems resulted from the loss – loneliness, loss of financial support, loss of professional support. The final nine questions addressed economic concerns, such as financial difficulty – unemployment due to injury, loss of breadwinner, lost business – and the source and type of assistance received – from the government, for a coffin, for example. A space was left at the end of the questionnaire for comments.

Analysis

Descriptive statistics were applied to all non-PTSD variables and chi-squared analysis was used to determine relatedness of those variables to PTSD symptoms. As mentioned above, PTSS was determined using a straightforward algorithm based on DSM–IV symptom clusters B, C and D. For the few symptoms that matched more than one question, a positive response to only one such question could count towards caseness; for example, answering 'yes' to both 'Since the bombing are you...losing

your temper easily?' (symptom D2) and '...feeling angry?' (symptom D2) would satisfy only one of the two cluster D symptoms required by the algorithm.

Only the data for those individuals who responded to all 21 PTSS algorithm questions were analysed. This narrowed the sample from 2883 to 2627. Some questions addressed only a portion of the total sample (e.g. 'Were you pregnant at the time of the blast?' or 'After you were injured, where were you treated?') and in such cases the χ^2 analysis was applied to the appropriate subset of the total sample (e.g. the number of women or the number of people injured). Also, when there were four or more multiple choice answers to a question (e.g. 'How many children do you have?' or 'What is your religious affiliation?') the responses were usually grouped into two or three appropriate answer 'bins' in order to facilitate the analysis (e.g. 0, 1–6 and 7–12, or Christian and non-Christian).

RESULTS

Descriptive statistics

The analysed sample consisted of 2627 participants. Of this group, 47% were female, 62% were married and the mean age was 33.6 years (s.d.=9.7). Sixty-four of the women were pregnant. Forty-six per cent had completed secondary school and 40% had had some college education. The mean number of children per respondent was 3.0 (s.d.=2.1) and the mean number of dependants was 5.4 (s.d.=4.1). Notably, 7% reported having 10 dependants. Ninety-six per cent of the sample were Christian; the next largest religious group was Muslim, making up 2.5%. In all, this was a predominantly well-educated group of adults responsible for the care of many thousands of people.

Exposure and injury

Table 1 outlines the responses concerning the nature of exposure to the blast and resulting injuries. In sum, nine-tenths of this sample were direct witnesses of the tragedy; this was a highly physically traumatised sample; and the majority of those injured rated their medical care favourably.

Peritraumatic reactions and sequelae

Table 2 addresses the emotional and behavioural reactions people had to the

Table I Exposure and injury characteristics in the survey population (n=2627)

	n/N (%)
Exposure	
Location	
Inside a building	1902/2550 (75)
Outside a building	298/2550 (12)
On a street	185/2550 (7)
In another town	165/2550 (7)
First exposure	
Heard blast	1539/2559 (60)
Saw blast	405/2559 (16)
Felt blast	379/2559 (15)
Learned about blast	236/2559 (9)
Injury	
Injured	
Yes	1617/2546 (64)
No	929/2546 (37)
Treatment location	
Hospital	1405/1472 (95)
On site	20/1472 (1)
Treated self	40/1472 (3)
Other	7/1472 (1)
Quality of hospital care	
Very good	804/1444 (56)
Good	454/1444 (31)
Fair	165/1444 (11)
Poor	21/1444 (2)
Quality of medical response	
Very adequate	703/1478 (48)
Fairly adequate	701/1478 (47)
Inadequate	74/1478 (5)
Completely cured	
Yes	486/1550 (31)
No	1064/1550 (69)

event and how it changed their lives. A majority of respondents satisfied criterion A for PTSD, and approximately half the sample had talked about their experience with a friend or workmate. Nearly half of respondents reported currently experiencing financial difficulties resulting from the attack.

Time distribution of surveys

Ninety-five per cent of the surveys were completed between 20 days and 99 days after the bombing, most (65%) between days 53 and 95. The median post-bombing day of survey completion was day 67.

Table 2 Peritraumatic reactions and sequelae in the survey population (*n*=2627)

	n/N (%)
Peritraumatic feelings	
Afraid	1407/2075 (68)
Helpless	766/1725 (44)
Threatened	1176/1909 (62)
Talked about blast with:	
Friend/workmate	1261/2369 (53)
Family	814/2369 (34)
Other (religious leader, counsellor, psychologist)	294/2369 (12)
Received counselling	
Yes	1054/2501 (42)
No	1447/2501 (58)
Bereavement	
Bereaved	
Yes	875/2424 (36)
No	1549/2424 (64)
Person lost	
Immediate family (spouse, child, parent, sibling)	63/883 (7)
Other family	184/883 (21)
Other	636/883 (72)
Financial sequelae	
Current financial difficulty	
Yes	927/2021 (46)
No	1094/2021 (54)
Anticipated financial difficulty	
Yes	752/1856 (41)
No	1104/1856 (60)
Type of difficulty	
Cannot work	177/645 (27)
Lost business	114/645 (18)
Lost breadwinner	57/645 (9)
Other	297/645 (46)
Assistance received	
Yes	239/1832 (13)
No	1593/1832 (87)

Prevalence of PTSS and missing responses

Of the 2883 persons surveyed, 256 failed to answer enough of the PTSD symptomatology questions to allow a determination of PTSS by the algorithm described in the Method section, and this subsample was omitted from the analysis. Of the 2627 remaining individuals, 35.4% (929) fulfilled PTSS criteria. However, when the additional requirement of affirming any one of the criterion A questions was added to the PTSS criteria, the prevalence of PTSS decreased to 24.5% (643 of 2627). In terms of risk factors, when those left out of the analysis were compared with those included, the former group contained fewer women (41% (104/256) *v.* 47% (1229/2618), $P<0.05$), fewer injured persons (45% (107/237) *v.* 64% (1617/2546), $P<0.001$) and more among the injured who considered themselves cured (46% (39/85) *v.* 31% (475/1514), $P<0.005$). There was no other significant risk factor difference between the two groups.

Risk factors for PTSS

Among the demographic factors, female gender ($P<0.0001$), unmarried status ($P<0.01$) and less education ($P<0.0001$) were associated with PTSD symptoms. Variables not found significant in the current analysis were age, number of children (grouped 0, 1–5, 6–15), number of dependants (grouped 0, 1–10, 11–37), pregnancy and religion (grouped Christians and non-Christians). The exposure and injury variables that achieved significance were location somewhere outside of a building ($P<0.05$), seeing the blast ($P<0.05$), injury of any kind ($P<0.0001$) and not being cured (based on the injured subsample, $P<0.0001$). No particular type of injury was associated with PTSS by this analysis, and neither were site of treatment (grouped hospital/clinic and other; analysis on injured subset), assessment of hospital care (grouped very good/good and fair/poor; injured subset) or immediate medical response (grouped very/fairly adequate and inadequate; injured subset).

Peritraumatic reactions and sequelae that were significant risks for PTSS were feeling afraid ($P<0.0001$), helpless ($P<0.0001$) or threatened ($P<0.0001$); talking about the bomb, but not to a friend/co-worker ($P<0.01$), grouped friend/co-worker and other; and bereavement in general ($P<0.05$). The data concerning substance use were suspect and so were left out of the analysis. Variables not found to be harmful or benign in the present analysis were change in sexual relationship, having talked about the bombing at all, receiving reading materials or counselling, particular person mourned (grouped family and other; based on bereaved subsample) and type of problem resulting from losing a loved one (grouped loneliness/lack of companionship and other; based on bereaved subsample).

All the variables dealing with financial sequelae of the explosion were found significant for PTSD symptoms: currently experiencing financial difficulties ($P<0.0001$), anticipating financial difficulties ($P<0.0001$), inability to work owing to injury ($P<0.01$; type of difficulty grouped cannot work and other, analysed on subset with current financial difficulty) and receiving assistance ($P<0.05$).

DISCUSSION

The bombing of the US embassy in Nairobi, Kenya, on a busy Friday morning in August 1998 killed approximately 220 people and wounded thousands of others. Part of the recovery effort was to collect data on those affected by the blast in order to inform treatment strategies in the short and long term. The large convenience sample studied was predominantly made up of educated professional people who witnessed the attack first-hand. Among this group the prevalence of PTSS (our approximation of the PTSD diagnosis) was 35%, according to a self-report questionnaire. Factors associated with PTSS were

(a) female gender, unmarried status, less education;

(b) being outside during the blast, seeing the blast, injury, not fully recovering from injury;

(c) feeling afraid, helpless or threatened at the time of the blast;

(d) not talking with a friend or workmate about the blast;

(e) bereavement;

(f) experiencing or anticipating financial difficulty after the blast, inability to work because of injury, and receiving material or financial assistance.

Notably, there was no significant association with PTSD symptoms for age, number of children or religion; assessment of hospital care or immediate medical response; receiving counselling; or the relationship to the person mourned.

Advantages in context

Non-Western sample

Terrorism is now a global concern. Every day there are headlines reporting terrorist activities in industrialised Western nations and elsewhere, including Africa and Asia. Despite the magnitude of this threat to worldwide mental health, there are few published studies that systematically determine the prevalence of – and risk factors for – PTSD following a terrorist attack.

One relevant paper (Pfefferbaum *et al*, 2001) showed a close relationship between injury and post-traumatic stress in a directly exposed group of 21 individuals 8 months following the simultaneous US embassy bombing in Dar es Salaam, Tanzania, in which 11 people were killed and 80 wounded. As in our study, the people surveyed in this convenience sample were highly exposed to the traumatic event: a mean score of 6.7 (s.d.=1.9) out of a possible 8 on their measure of hearing and feeling the explosion, and a 31% (6 of 21) injury rate, with one individual rating his/her injury 3 ('some injury') out of 4 and five others rating theirs 2 ('a little injury') out of 4. Initial reactions, such as 'nervous or afraid', 'felt helpless' and 'thought I would die', were rated on a scale of 1 to 5. There was also a battery of questions on post-traumatic stress symptoms, e.g. 'I had dreams about it', 'I tried not to talk about it' and 'I felt watchful and on guard'. In this traumatised sample, injury significantly predicted post-traumatic stress symptoms (R^2=0.21) in general as well as intrusion and arousal symptom clusters in particular; however, injury did not predict avoidance/numbing symptoms at 8 months. The measures of hearing and feeling the explosion and initial reaction did not predict post-traumatic stress symptoms or symptom clusters. In our larger sample, however, presence of injury, witnessing the explosion and peritraumatic reactions of fear, helplessness and feeling threatened all significantly predicted PTSS within 3 months of the incident.

The DSM–IV criteria for PTSD have not been fully validated in developing countries. Despite the growing literature on post-traumatic morbidity in Africa, which describes results similar to those in Western studies, it is possible that a different set of symptoms would better represent psychiatric impairment after trauma among, for instance, middle-class Kenyans. Jenkins (1996), after finding certain PTSD criteria inapplicable among Salvadoran women, suggested some criterion modifications for different cultures. In the case of African populations, somatic symptoms such as intense heat ('central heat'; Ifabumuyi, 1981) or the social repercussions of numbing might be more salient indicators of PTSD. The roles of dreams, ancestors, witches and fate may need to be assessed with appropriate terminology. Alternatively, the concept of PTSD could be a cultural category fallacy (cf. Kleinman, 1977),

in the sense that no such diagnostic entity, as configured in DSM–IV, for example, exists outside of Western industrialised nations. Although by no means conclusive, the similarity between findings in Western and non-Western studies of PTSD argues against this, and suggests that the DSM–IV criteria at least approximate a universal phenomenon.

Sample size

In addition to its short-term, non-Western focus, the current study is unique for its large sample size (*n*=2627). Even in this age of telephone interviews and web-based surveys – neither of which were feasible in this investigation – there are only three other studies of terrorist-related PTSD with populations exceeding 2000: Pfefferbaum *et al* (2002) on children's response to the Oklahoma City tragedy; Silver *et al* (2002) on the reactions to the disaster of 11 September 2001 of Americans living outside of New York; and Schlenger *et al* (2002) on the reactions to the latter tragedy of a US national sample including New Yorkers.

Risk factor significance

Another advantage of our investigation is its clear findings on risk factors for attack-related PTSD symptoms, concerning which other research findings are not always consistent. Most importantly, the Nairobi data show a strong link between injury and PTSS ($P<0.0001$). Other studies showing the importance of injury severity include those of Pfefferbaum *et al* (2001), described above; Abenheim *et al* (1992), on 254 survivors of terrorist attacks in France; and Wilson *et al* (1997), on police officers in Ireland who witnessed terrorist acts. On the other hand, Curran *et al* (1990) demonstrated an inverse relationship between injury severity and PTSD for 26 people involved in the 1987 Enniskillen bombing in Northern Ireland, and Tucker *et al* (2000), studying 85 individuals after the Oklahoma City bombing, showed a significant association between injury and PTSD in a univariate analysis that was not significant in the multivariate analysis. Several factors consistently reported to be associated with PTSD were further confirmed in our analysis. For example, measures of proximity to the event (in our study, being outside *v.* inside a nearby building) have predicted PTSD in several studies of terrorist attacks: Galea *et al* (2002*a*,*b*), in a

telephone survey of 988 Manhattanites, demonstrated the significance of residence below Canal Street on 11 September; and Bernard *et al* (2002) showed higher PTSD rates among staff at two schools near the World Trade Center site compared with staff at two New York City schools over 8 km away. Other variables found to be significant in our study that typically correlate with PTSD after terrorist attacks include female gender, not being married and various negative long-term sequelae such as increased financial difficulty or losing possessions in the attack (Easton & Turner, 1991; Galea *et al*, 2002*a*,*b*). Some risk factor variables were interrelated: for example, there was an association between financial loss and both anticipating financial difficulty and receiving assistance.

Prevalence

The prevalence of PTSS in this recently traumatised civilian cohort – 35% (or 24%, when peritraumatic feelings are included in the analysis) – is comparable with data from other terrorist incidents. In his evidence-based review prior to the 11 September disaster in the USA, Gidron (2002) showed a mean post-attack PTSD prevalence of 28%; this value was derived from six US studies and was unduly affected by one study of police officers (PTSD prevalence 5%), small samples, and variability in sampling, timing and assessment. Estimates of PTSD prevalence following the 11 September disaster in large samples of US populations have been reported as 7.5% in Manhattan and 20% below Canal Street in New York at 1–2 months (Galea *et al*, 2002*a*); 7.5% in Manhattan, as well as 24% with increased smoking and 36% with increased marijuana use at 1–2 months (Vlahov *et al*, 2002); 9% in Manhattan at 1–2 months (Galea *et al*, 2002*b*); 11% in New York City and 4% in the rest of the USA at 1–2 months (Schlenger *et al*, 2002); 17% at 2 months and 6% at 6 months in the US population outside New York City (Silver *et al*, 2002); and 15–23% near the site and 6–8% over 8 km away at 4–6 months (Bernard *et al*, 2002). Hence, it is not surprising that our group composed primarily of directly exposed civilians assessed at 1–3 months had a PTSS prevalence of roughly 35%.

Limitations

Convenience sample

One of the shortcomings of our study is its lack of randomisation. Operation Recovery's primary objective in the months following the incident was service delivery and there was no opportunity to form randomised groups. Participants were recruited at nearby businesses, at a clinic devoted to people affected by the blast and at public gatherings such as the annual agricultural exposition. The profile of the resulting cohort was skewed towards highly exposed, educated professionals. Respondents might have been seeking help for high levels of distress, and a bias towards increased trauma in a sample would naturally inflate the prevalence of PTSD. However, this shortcoming is shared by many studies: with the exception of the investigation of the responses of 2000 schoolchildren to the Oklahoma bombing (Pfefferbaum *et al*, 2002), no large, randomised study of PTSD after a terrorist attack had been conducted until the telephone and internet surveys conducted after the New York 11 September tragedy. Notably, the results of these surveys agree in many ways with the data from our Kenyan sample. Also, we made a concerted attempt to include everyone who had been near to the blast, by contacting every office in the surrounding city blocks and inviting workers who were present during the blast to participate in the study. Although this predisposed to a large proportion of educated professionals in the sample, it provided an accurate reflection of the population present on a weekday morning in the centre of the business district. These middle-class participants were local Black Kenyans.

Questionnaire

A second weakness of our study is its use of an unvalidated psychometric instrument. The questionnaire was constructed in the first month following the embassy bombing with the help of international trauma experts and it went through many revisions before it was used to collect data. Incidentally, virtually no one required assistance with comprehending the English-language questionnaire. Nevertheless, an opportunity was lost to use a more standard trauma scale or some other tool based on DSM–IV. It should be noted, however, that the reported studies on this topic have made use of a wide variety of non-standard measures of post-traumatic stress, and that commonly used standard instruments for assessing PTSD have not yet been validated in African populations. The unvalidated self-report instrument in this study, then, allowed only an approximation of PTSD caseness and not a diagnosis. Questions in one section of the survey did roughly correspond to the DSM–IV criteria and so a PTSS algorithm (one or more re-experiencing symptoms, three or more avoidance/numbing symptoms and two or more arousal symptoms) was plausible. This algorithm did not include retrospectively reported criterion A (exposure and peritraumatic reaction) symptoms, nor did it address decline in function, overall subjective distress or (unequivocally) duration of symptoms. However, our procedure was somewhat validated by the fact that there was a strongly significant association ($P<0.0001$) between PTSS and each of the criterion A reaction questions (feeling afraid, helpless or threatened during the event). Furthermore, 91% of this sample experienced the explosion directly, which addresses the exposure aspect of DSM–IV criterion A. Regarding decline in function or increased distress, many respondents were seeking mental health treatment either at a clinic or at their workplace. Sequelae such as bereavement, financial difficulties and receiving assistance were closely aligned with PTSS. Once again, the small amount of published research on this subject includes several examples of the use of similar methods to measure post-traumatic stress. Last, although other anxiety and depressive disorders are important sequelae of trauma, appropriate testing for these disorders would have made the (already long) questionnaire impracticably lengthy, and this might have led to an underestimation of post-traumatic morbidity.

Missing responses

A third problem with our study is the unfavourable response rate. Lower levels of trauma exposure and of serious injury characterised the 256 people who were omitted, thereby possibly raising the actual prevalence of PTSS above that observed. A few important variables were removed from the analysis owing to poor response (e.g. changes in sexual relationship). Some interesting results presented above had upwards of one-third non-response (e.g. having felt afraid, helpless or threatened; numbers of children and dependants) and so are difficult to interpret. Related to the issue of non-response in surveys is the problem of accuracy. This was most pronounced in our sample in the responses on substance use. Vlahov *et al* (2002) in a telephone survey of 988 Manhattan residents confirmed the intuitive notion that cigarette, alcohol and marijuana use increased after the World Trade Center attacks and their use was linked to cases of PTSD and depression. Our investigation – with only about 15% missing data on this subject – showed not only low rates of increased use (alcohol 5%, smoking 3%, illicit drugs 1%) but also unusually high rates of reported abstinence (alcohol 61%, smoking 73%, illicit drugs 78%). If the tendency of this population was to underreport symptoms in other potentially stigmatising areas such as post-traumatic stress criteria, then the already highly traumatised people in this sample may be more troubled than the descriptive statistics indicate.

The 35% prevalence of significant PTSD symptoms in this highly exposed sample a few months after the Nairobi bombing is comparable with the prevalence found in studies of Western populations affected by terrorism. Likewise, frequently reported predictors of PTSD such as female gender, injury, peritraumatic response and financial sequelae were confirmed in this large non-Western sample. It will be important to learn more from this cohort, and from the unfortunately growing number of similar groups, so that we can further refine our diagnoses, identify those at greatest risk and effectively treat the victims of terrorism.

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CLINICAL IMPLICATIONS

■ Risk factors commonly associated with post-traumatic stress disorder (PTSD) in industrialised countries also apply to traumatised non-Western populations.

■ Outreach services can be tailored to the demographic characteristics, types of exposure and post-traumatic sequelae that predispose to PTSD.

■ The media can inform individuals of specific traits normally linked to increased post-traumatic stress.

LIMITATIONS

■ The study used a convenience sample.

■ The questionnaire had not been systematically validated.

■ There were an appreciable number of missing responses.

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