ORIGINAL ARTICLE

Psychiatric Disorders Among Tortured Bhutanese Refugees in Nepal

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Background: The impact of torture on the distribution of psychiatric disorders among refugees is unknown.

Methods: We surveyed a population-based sample of 418 tortured and 392 nontortured Bhutanese refugees living in camps in Nepal. Trained interviewers assessed *International Classification of Diseases, 10th Revision (ICD-10)* disorders through structured diagnostic psychiatric interviews.

Results: Except for male sex, history of torture was not associated with demographics. Tortured refugees, compared with nontortured refugees, were more likely to report 12-month *ICD-10* posttraumatic stress disorder, persistent somatoform pain disorder, and dissociative (amnesia and conversion) disorders. In addition, tortured refugees were more likely to report lifetime posttraumatic stress disorder, persistent somatoform pain disorder, affective disorder, generalized anxiety disorder, and dissociative (amnesia and conversion) disorders. Tortured women, compared with tortured men, were more likely to report lifetime generalized anxiety disorder, persistent somatoform pain disorder, affective disorder, and dissociative (amnesia and conversion) disorders.

Conclusions: Among Bhutanese refugees, the survivors had higher lifetime and 12-month rates of *ICD-10* psychiatric disorder. Men were more likely to report torture, but tortured women were more likely to report certain disorders. The results indicate the increased need for attention to the mental health of refugees, specifically posttraumatic stress disorder, persistent somatoform pain disorder, and dissociative (amnesia and conversion) disorders among those reporting torture.

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SINCE 1990, Nepal has received more than 100 000 Bhutanese refugees. These Nepali-speaking refugees are descendants from Nepali migrants who were invited to settle in Bhutan several generations ago. The refugees left Bhutan because of persecution and torture by the Bhutanese government's security services. The autocratic government likely felt threatened by the country's growing Nepali-speaking population and the launch of a democracy movement.[1-3]

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The literature on refugee mental health has been limited in that most studies of refugees have involved samples with participants who found refuge in the West.[4-9] These studies have indicated that symptoms of posttraumatic stress disorder (PTSD), depression, and anxiety, as well as somatic complaints, are common.[5,8,10-15] However, the results may not necessarily generalize to the more than 70%[16] of the world's refugees living in low-income countries, where refugees experience different problems with respect to hazards, deprivation,[17] and acculturation.[18,19] Representative data on mental disorder are rarely available. The only previous population-based study[20] of adult refugees outside the West identified high levels of anxiety and depression among Cambodian refugees, which is consistent with refugee studies[5,8] conducted in the West. More work needs to be conducted in sites where most of the world's refugees live.[4,6-9] Similarly, the study of the impact of torture on refugees has been limited because of lack of access to population-based samples. Obtaining access to representative samples of torture survivors has been difficult.[21]

In 1995, researchers conducted the only population-based survey of torture survivors thus far.[22] Comparisons between 526 tortured and 526 matched nontortured Bhutanese refugees displaced in Nepal indicated torture as a risk factor for elevated levels of anxiety and depression symptoms and for PTSD. However, this

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PARTICIPANTS AND METHODS

PARTICIPANTS

The sample frame consisted of 526 tortured and 526 nontortured Bhutanese refugees who had previously been interviewed in 1995.[22] The tortured refugees had been randomly sampled from a list, consisting of registered physically tortured Bhutanese refugees living among the 85 078 Bhutanese refugees in refugee camps in Nepal. The list had been created by the community-based Center for Victims of Torture, Nepal, between 1991 and 1994. In cooperation with political parties, human rights organizations, collaborating agencies, and a hut-to-hut survey, the center's refugee staff identified and registered 2331 Bhutanese refugees who reported a history of physical torture. *Physical torture*, consistent with the World Medical Association's[31] definition, was defined as deliberate, systematic, or wanton infliction of physical suffering by 1 or more persons acting alone or on the orders of any authority to yield information, to make a confession, or for any other reason. As the identification process included a hut-to-hut survey, it is likely that virtually all survivors of physical torture in the camps were included. Nevertheless, because of cultural stigma associated with rape, not all female torture survivors may have registered themselves. The nontortured comparison participants were refugees living in the same camps and were neighbors of the tortured participants. Tortured and nontortured refugees were matched on age and sex. Matching on sex was exact. Ten years' difference was accepted as an age match. In 1995, the 2 groups had, on average, the same age (mean age, 41 years).[22]

Of 1052 refugees in our sampling frame, we were able to approach 946 (89.9%) between March 20, 1997, and July 31, 1997, the latest date we had permission to collect these data. Of 946 approached refugees, 879 (92.9%) were interviewed, 32 (3.4%) refused, 20 (2.1%) were away from camp, 4 (0.4%) were not found, 5 (0.5%) had died, and 6 (0.6%) were too disabled by mental or physical illness to attend the interview. Of 879 interviewed refugees, 20 interviews (2.3%) were not completed because of mental status problems or deafness. Moreover, 49 completed interviews (5.6%) were discarded because the interviewees had not been in the sample frame and had been approached and interviewed by mistake. The remaining 810 participants included 418 tortured and 392 nontortured refugees.

ASSESSMENT

The battery of instruments included specific phobias and affective, generalized anxiety, persistent somatoform pain, posttraumatic stress, and dissociative (amnesia and conversion) disorder modules of the Composite International Diagnostic Interview (CIDI).[32] The CIDI assesses *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV*[33]*)* and *ICD-10*[23] diagnoses. We report *ICD-10* disorders because the *ICD-10*, in contrast to the *DSM-IV*, has been specifically developed for international use. For each disorder, the CIDI elicits the time of first and last occurrence, allowing for the determination of lifetime and 12-month disorder.

The CIDI covers *ICD-10* dissociative amnesia, dissociative motor disorder, dissociative convulsions, and dissociative anesthesia and sensory loss. The latter 3 disorders are parallel to *DSM-IV*[33] conversion disorder with motor symptom or deficit, conversion disorder with seizures or convulsions, and conversion disorder with sensory symptom or deficit, respectively. In contrast to *DSM-IV*, *ICD-10* categorizes these 3 conversion disorders as dissociative disorders. The CIDI covers neither fugue nor dissociative identity disorder. The *ICD-10* dissociative motor disorder pertains to loss of coordination of voluntary muscle movement, including paralysis, loss of voice, and the ability to stand unaided.

Clinical experience and narrative interviews had indicated the relevance of studying medically unexplained pain.[30] The *ICD-10* persistent somatoform pain disorder, as measured by the CIDI, pertains to serious, medically unexplained, physical pain causing a great deal of distress for at least 6 months.

The CIDI affective disorders module covers *ICD-10* mild, moderate, and severe depressive episodes and dysthymia. We did not include the CIDI mania module. We defined the scope of generalized anxiety disorder (GAD) to include worries related to daily refugee life, such as realistic concerns about well-being of family in the camps, lost property, well-being of relatives in Bhutan, and an uncertain future.

The CIDI PTSD module includes a checklist of traumatic events. The PTSD criteria were evaluated for the most stressful or upsetting event reported. We relaxed the *ICD-10* criteria for PTSD to include those with a delayed onset, ie, onset of symptoms more than 6 months after the event.

The interview included 5 questions about separation experienced before age 13 years, covering death of mother, death of father, parental separation or divorce, living alone, and living with relatives other than parents. Early separation was operationalized as scoring positive on at least 1 of these 5 questions. The first section of the Harvard Trauma Questionnaire,[34] a section designed to assess trauma among Southeast Asian refugees, measured the number of childhood traumatic events (range, 0-16) before age 13. Mental disease in the family was operationalized as the number of endorsements of 5 dichotomous questions (range, 0-5) covering mental disease in the family. On the basis of a brief medical investigation, the physician assessed the presence of significant current and past disease, including diabetes, hypertension, heart disease, head injury, meningitis, encephalitis, and history of thyroid functioning.

survey was limited in scope, focusing on few variables and on symptoms of disorders rather than on a range of diagnosed disorders. Because of the unique research opportunities inherent in this representative sample of torture survivors, we decided to further interview the participants to study a range of *International Classification of Diseases, 10th Revision (ICD-10)*[23] disorders with correlates.

We address 3 questions. First, is history of reporting torture associated with certain demographic correlates? Demographic correlates might indirectly affect the distribution of psychiatric disorders among tortured and nontortured refugees, by increasing the chances of exposure to torture. Depending on the reasons for torture, perpetrators of torture may target specific groups of people. Moreover, exposure to different traumatic events has been shown to be associated with certain individual characteristics, such as sex and ethnicity.[24-26]

Second, what psychiatric disorders are likely sequelae of torture in this refugee population? Studies[10,27]

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The instruments were systematically translated and adapted for 3 months, using (1) 7 bilingual Nepali translators, who had been trained to translate each item, with content, criterion, technical, conceptual, and semantic equivalence as goals,[35] (2) a bilingual Nepali physician who independently evaluated the translation, (3) 2 focus groups, consisting of uneducated Bhutanese refugees, who evaluated each translated item for comprehension and suggested revisions, and (4) a Western expatriate mental health researcher, who evaluated 1 back-translation and 1 blind back-translation of all items for each type of equivalence. As described in detail elsewhere,[36] this process was monitored for each item with a Translation Monitoring Form, to systematically identify and improve translated items that were not fully equivalent to the originals.

The instruments were administered by the Nepali translators: 2 male physicians as well as 3 male and 2 female undergraduate students in unrelated disciplines. The translators received 3 weeks of interviewing training. The first week of training was conducted by the expatriate researcher, who had previously been trained by a World Health Organization (WHO)-designated CIDI trainer. The second week, the translators (now interviewers) pilot-tested the translations. The WHO-designated trainer conducted the final week of training.

Testing revealed that the CIDI probe flow chart was not functioning as intended.[37] The CIDI probe flow chart is a series of structured questions to assess whether somatic complaints are probably psychiatric (ie, medically unexplained). Nepali physicians observed that the flow chart questions administered by the lay interviewers did not always lead to the proper identification of medically explained vs medically unexplained symptoms. The flow chart presupposes that respondents attribute their symptoms as the outcomes of either mental, physical, or substance-induced processes and that local physicians communicate diagnoses to patients. These assumptions are false in this context where physicians rarely share diagnoses with patients and where headaches and other body aches are typically considered physical illnesses, caused by physical injury, supernatural processes, or both. Thus, the physicians, instead of the lay interviewers, administered the CIDI section covering somatoform symptoms. The physicians applied their knowledge of medicine to probe beyond the structured flow chart questions and accordingly coded whether the symptoms were medically unexplained.[37]

PROCEDURES

The interviews consisted of a medical and a nonmedical section. The medical section, administered to all participants by 1 of the 2 physicians, included the somatoform and dissociative disorders section of the CIDI, history of medical problems, and the brief physical examination mentioned in the "Assessment" subsection. The physicians provided and referred participants for medical treatment when deemed necessary. The 5 lay interviewers administered the other instruments. Because of the limited time allotted by local authorities to conduct the survey, we chose not to administer all questionnaires to all participants, to reduce the overall duration of the survey. A random subsample of 523 (65%) of 810 respondents received the Harvard Trauma Questionnaire[34] and the questions about early separation and mental illness in the family. All interviews took place in the confidential environment of our clinic. The interviewers were not blinded with regard to torture status because PTSD assessment requires a reference event. Male and female lay interviewers interviewed male and female respondents, respectively.

We followed the Declaration of Helsinki[38] recommendations for ethical research. Because of illiteracy and distrust toward written contracts, we did not seek written consent. Rather, after a description of the study was read to the respondents, verbal informed consent was obtained and recorded on paper. Research involving either trauma stories[39] or sensitive questions[40] unlikely has a negative impact on respondents and is therefore ethical.

STATISTICAL ANALYSES

We used 2-tailed χ^2 and t tests for univariate comparisons and multivariate logistic regression to identify predictors of torture status. The multivariate regression involved a random subsample of 523 respondents and had sufficient statistical power to identify fairly small effect sizes as significant.[41] All other analyses were conducted on the full sample. We applied multivariate analysis of covariance to test whether the general profile of disorders differed between the tortured and nontortured groups. Age and sex were covariates; Wilks Λ was the criterion. We used univariate logistic regression to assess differences in rates of disorder between the groups. The pattern of results did not change when using standard multivariate or hierarchical logistic regression analyses involving the addition of demographic variables to the equation. Because odds ratios overestimate relative risk in studies of common outcomes, we estimated risk ratios.[42] Significance was set at $P<.05$ except for analyses identifying demographic correlates of disorders. For the latter analyses, significance was set at $P<.01$ to reduce chance significance caused by multiple tests. All analyses were performed with commercially available software.[43]

have indicated there are increased symptoms of disorder among tortured refugees but have not evaluated disorders as such. In the only previous controlled study of disorders among torture survivors, Basoglu and colleagues[28] reported significantly more PTSD diagnoses among a selected sample of 55 tortured Turkish political activists than among the matched comparison group. The 2 groups did not differ in terms of prevalence of anxiety or affective disorders. However, pain and dissociative disorders were not assessed.

Third, what are the demographic correlates of disorders among Bhutanese tortured refugees? The US National Comorbidity Survey[29] data indicate that the prevalence of most disorders declines with age and higher socioeconomic status and that women are more likely to report anxiety and affective disorders. Knowledge of demographic correlates of disorder among tortured refugees is useful for program development in refugee camps.

The survey was conducted by a Nepali nongovernmental organization familiar with the context. The orga-

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Table 1. Univariate Comparisons Between Tortured and Nontortured Bhutanese Refugees

Variable	No.	No. (%) Tortured (n = 418)	No. (%) Nontortured (n = 392)	χ^2	*df*	*P*
Sex						
Male	810	324 (77.5)	292 (74.5)	1.0	1	.31
Female		94 (22.5)	100 (25.5)	1.0	1	.31
Religion						
Hindu	810	349 (83.5)	298 (76.0)	7.0	1	.008
Buddhist		48 (11.5)	73 (18.6)	8.1	1	.004
Other		21 (5.0)	21 (5.4)	0.0	1	.83
Lives without spouse	810	42 (10.0)	45 (11.5)	0.4	1	.51
Unemployed	810	387 (92.6)	365 (93.1)	0.1	1	.77
Current disease*	810	113 (27.0)	145 (37.0)	9.2	1	.002
Past disease*	810	107 (25.6)	120 (30.6)	2.5	1	.11
Separated from family at <13 y of age	523	235 (75)	157 (76)	0.1	1	.82
	No.	**Mean (SD)**	**Mean (SD)**	***t***	***df***	***P***
Age, y	810	44.5 (12.4)	44.1 (12.6)	0.5	808	.60
Family income in Bhutan (1 = low; 4 = very high)	810	2.3 (0.6)	2.2 (0.6)	2.4	808	.01
Schooling, y						
Men	616	2.1 (3.2)	1.9 (2.9)	0.7	614	.52
Women	194	0.2 (0.9)	0.4 (1.5)	−1.3†	164.9†	.21
Time since leaving Bhutan, y	810	5.4 (0.7)	5.5 (0.6)	−2.1	808	.02
No. of childhood traumatic events	523	1.3 (1.4)	1.4 (1.4)	−0.7	521	.48
Mental disease in family‡	523	0.1 (0.3)	0.1 (0.4)	0.2	521	.84

**Current and past diseases were operationalized as presence of, respectively, significant current and past disease, assessed during a brief medical investigation.*
†t Test for equality of means with unequal variances *because the variances of means differed.*
‡Mental disease in the family was operationalized as the number of endorsements of 5 dichotomous questions covering mental disease in the family (range, 0-5).

nization had provided medical and psychosocial care to more than 1200 Bhutanese torture survivors for 6 years and had completed a narrative study, focus groups, a case-control survey, and a survey of local idioms of distress.[22,30]

RESULTS

Details on the torture have been previously published.[22] In brief, the mean ± SD duration of torture was 21.4 ± 83.3 days (range, 1-1095 days). Ninety percent of physically tortured respondents also reported torture that did not involve the body. More than 50% reported severe beatings (97.1%), threats (89.0%), humiliations (79.2%), forced incongruent acts (66.3%), social isolation (54.3%), sleep deprivation (52.2%), or hygiene deprivation (51.9%). Incongruent acts are acts that violate local religious norms (eg, eating beef).

TORTURE STATUS

The present data were collected a mean ± SD of 6.0 ± 0.9 years (range 3-11 years) after the torture. Tortured and nontortured refugee groups were similar in terms of age, sex, marital status, employment status, years of schooling, early separation, childhood trauma, and mental illness in the family (**Table 1**). Tortured refugees had had somewhat higher family incomes in Bhutan. Nontortured refugees were more likely to be Buddhist and had been displaced slightly longer. Tortured refugees who had had better access to treatment facilities in the camps[30] were less likely to suffer from current or past disease.

We performed logistic regression analysis on having a history of torture, with family income in Bhutan, religion, early separation, membership in a political or human rights organization in Bhutan, childhood trauma, and mental illness in the family as predictors. Age and sex were also entered but were not expected to be significant because the sample was drawn from groups matched on age and sex. The results revealed no significant predictors ($P>.05$). Among these nonsignificant predictors, family income in Bhutan ($P=.09$) was the most significant. Nevertheless, torture status among the Bhutanese is significantly associated with sex because 76.8% of the population-based sample frame of torture survivors were men ($\chi^2_1=151.2$, $P<.001$).[22] In short, other than male sex, torture status was not associated with assessed demographics.

PSYCHIATRIC DISORDERS

Multivariate analyses of covariance indicated that torture status was associated with lifetime and 12-month disorder. The general profile of disorders was significantly affected not only by torture status ($F_{6,801}=88.5$, $P<.001$) but also by the combined covariates of age and sex ($F_{12,1602}=9.1$, $P<.001$). The analysis was repeated for 12-month disorders, with similar results ($F_{6,801}=44.6$, $P<.001$ and $F_{12,1602}=7.5$, $P<.001$; respectively).

Risk ratios showed that tortured refugees, compared with nontortured refugees, were more likely to have 12-month posttraumatic stress, dissociative, and persistent somatoform pain disorders (**Table 2**). In addition,

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Table 2. Lifetime and 12-Month Prevalence of *ICD-10*[23] Psychiatric Disorders Among 418 Tortured and 392 Nontortured Bhutanese Refugees*

	Lifetime Prevalence			12-Month Prevalence		
ICD-10 Disorder	Tortured (n = 418)	Nontortured (n = 392)	RR (95% CI)	Tortured (n = 418)	Nontortured (n = 392)	RR (95% CI)
Posttraumatic stress disorder (PTSD)	308 (73.7†)	57 (14.5)	5.1 (4.6-5.5)‡	181 (43.3†)	16 (4.1)	10.6 (7.6-13.8)‡
Persistent pain disorder	235 (56.2)	113 (28.8)	2.0 (1.7-2.2)‡	213 (51.0)	108 (27.6)	1.8 (1.6-2.1)‡
Affective disorder	149 (35.6)	61 (15.6)	2.3 (1.8-2.8)‡	32 (7.6)	20 (5.1)	1.5 (0.9-2.5)
Severe depressive episode	107 (25.6)	32 (8.2)	3.1 (2.4-4.2)‡	14 (3.3)	9 (2.3)	1.5 (0.6-3.3)
Generalized anxiety disorder	86 (20.6)	49 (12.5)	1.6 (1.2-2.2)‡	26 (6.2)	22 (5.6)	1.1 (0.6-1.9)
Specific phobia	97 (23.2)	112 (28.6)	0.8 (0.6-1.0)	92 (22.0)	101 (25.8)	0.9 (0.7-1.1)
Any dissociative disorder	81 (19.4)	18 (4.6)	4.2 (2.7-6.3)‡	75 (17.9)	13 (3.3)	5.4 (3.2-8.6)‡
Dissociative amnesia§	37 (8.8)	8 (2.0)	4.3 (2.1-8.6)‡	. . .	. . .	. . .
Dissociative motor disorders§	47 (11.2)	5 (1.3)	8.8 (3.7-19.0)‡	. . .	. . .	. . .
Dissociative convulsions§	8 (1.9)	2 (0.5)	3.8 (0.8-16.6)	. . .	. . .	. . .
DASL§	60 (14.4)	11 (2.8)	5.1 (2.8-8.7)‡	. . .	. . .	. . .
Any disorder	369 (88.3)	220 (56.1)	1.6 (1.5-1.7)‡	311 (74.4)	188 (48.0)	1.6 (1.4-1.7)‡

*RR indicates risk ratio; CI, confidence interval; and DASL, dissociative anesthesia and sensory loss. Data are presented as number (percentage) unless otherwise indicated.

†Of 333 tortured refugees (79.7%) who reported that torture was the most stressful or upsetting event among the events listed in the CIDI[32] PTSD module, 71.8% and 40.5% reported lifetime and current PTSD, respectively. These PTSD rates are almost equal to those of the total sample of 418 tortured refugees, displayed here.

‡Significant at $P<.05$.

§12-Month rates of specific dissociative disorders are not available because the CIDI only assesses the onset and recency of dissociative disorders as a group.

Table 3. Comorbidity of Lifetime Posttraumatic Stress Disorder (PTSD) With Other Lifetime Disorders in Tortured and Nontortured Refugees*

	Tortured Refugees (n = 418)				Nontortured Refugees (n = 392)			
	PTSD (n = 308)	No PTSD (n = 110)	χ^2	*P*	PTSD (n = 57)	No PTSD (n = 335)	χ^2	*P*
Persistent pain disorder	190 (61.7)	45 (40.9)	14.2	<.001	22 (38.6)	91 (27.2)	3.1	.08
Affective disorder	132 (42.8)	17 (15.4)	26.5	<.001	20 (35.1)	41 (12.2)	19.4	<.001
Generalized anxiety disorder	74 (24.0)	12 (10.9)	8.5	.003	11 (19.3)	38 (11.3)	2.8	.09
Specific phobia	86 (27.9)	11 (10.0)	14.6	<.001	29 (50.9)	83 (24.8)	16.2	<.001
Dissociative disorder	71 (23.1)	10 (9.1)	10.1	.001	4 (7.0)	14 (4.2)	0.9	.34
Any disorder	244 (79.2)	61 (55.4)	23.2	<.001	40 (70.2)	163 (48.7)	9.0	.003

*Data are given as number (percentage) unless otherwise indicated.

tortured refugees were more likely to have had posttraumatic stress, dissociative, persistent somatoform pain, affective, and generalized anxiety disorders at some point in their lives.

The most frequent reported lifetime disorder among torture survivors was PTSD. Approximately 3 of 4 tortured refugees had this disorder at some point in their lives. More than 4 of every 10 tortured refugees had PTSD within the year before the interview. Among 365 refugees with lifetime PTSD, only 9 (2.5%) reported an onset of symptoms that was more than 6 months after the event. Onset of PTSD was always within 2 years of the event.

More than half of the tortured refugees reported a lifetime history of persistent somatoform pain disorder. In contrast, among nontortured refugees, only 1 of 4 reported this lifetime disorder. Lifetime dissociative disorder was common among tortured refugees (19.4%) but not among nontortured refugees (4.6%). The 12-month prevalence rates of persistent somatoform pain disorder and dissociative disorder were similar to the lifetime rates, indicating that these were chronic disorders. The lifetime rates of affective disorder and GAD were higher among tortured refugees (35.6% and 20.6%, respectively) than among nontortured refugees (15.6% and 12.5%). However, 12-month affective disorder and GAD rates were much lower for tortured and nontortured refugees, indicating remission.

Approximately 5 of 6 tortured refugees had at least 1 lifetime disorder, and 3 of 4 had at least one 12-month disorder. In contrast, more than half of nontortured refugees had a lifetime disorder within their life, and almost half had a 12-month disorder.

With respect to comorbidity (**Table 3**), approximately three quarters of the tortured and nontortured refugees with lifetime PTSD reported a comorbid disorder. Tortured refugees with lifetime PTSD, compared with tortured refugees without lifetime PTSD, were more likely

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Table 4. Demographic Correlates of Lifetime *ICD-10*[23] Psychiatric Disorders Among 418 Tortured Bhutanese Refugees*

	No. (%)	PTSD	Dissociative Disorder	Persistent Pain Disorder	Affective Disorder	GAD	Specific Phobia	Any Disorder
Total sample	418 (100)	73.7	19.4	56.2	35.6	20.6	23.2	88.3
Sex								
Male	324 (77.5)	71.3	16.7	52.8	28.7	13.9	20.7	86.7
Female	94 (22.5)	81.9	28.7†	68.1†	59.6†	43.6†	31.9	93.6
Age, y								
21-35	119 (28.5)	73.9	18.5	47.9	36.1	16.0	26.1	84.9
36-54	207 (49.5)	71.5	19.8	58.0	37.2	24.6	20.3	89.4
55-85	92 (22.0)	78.3	19.6	63.0	31.5	17.4	26.1	90.2
Religion‡								
Hindu	349 (83.5)	75.4	20.1	58.7	37.5	22.6	23.5	90.3
Buddhist	48 (11.5)	62.5	14.6	47.9	27.1	8.3†	20.8	81.3
Marital status								
Lives with spouse	376 (90.0)	72.3	19.1	55.1	33.8	18.1	21.0	87.5
Lives without spouse	42 (10.0)	85.7	21.4	66.7	52.4	42.9†	42.9†	95.2
Employment status								
Unemployed	387 (92.6)	74.2	19.4	56.3	35.1	20.4	23.0	88.9
Employed	31 (7.4)	67.7	19.4	54.8	41.9	22.6	25.8	80.6
Preflight family income								
Low	17 (4.1)	47.1	11.8	47.1	29.4	5.9	17.6	76.5
Average	273 (65.3)	73.3	19.8	57.5	33.7	17.9	24.5	88.3
High or very high	128 (30.6)	78.1	19.5	54.7	40.6	28.1	21.1	89.8
Education, y								
0	284 (67.9)	75.0	21.1	57.0	38.0	22.9	25.4	88.7
1-15	134 (32.0)	70.9	15.7	54.5	30.6	15.7	18.7	87.3

**Data are given as percentages unless otherwise indicated. The displayed percentages are raw percentages, indicating the percentage of survivors with a given demographic variable that have a certain psychiatric disorder. PTSD indicates posttraumatic stress disorder; GAD, generalized anxiety disorder.*

†Significant according to χ^2 test, with degrees of freedom equal to number of demographic variable levels minus 1. Considering the high number of comparisons, statistical significance was set at .01 to reduce chance significance.

‡Analyses exclude religions other than Hinduism and Buddhism.

to report each of the assessed disorders. Moreover, nontortured refugees with lifetime PTSD, compared with nontortured refugees without lifetime PTSD, were more likely to report affective disorder and simple phobia.

Demographic correlates of the different disorders among torture survivors are shown in **Table 4**. Tortured female refugees, compared with tortured male refugees, were at higher risk for most disorders. Survivors living without a spouse (eg, being single, living separated, or widowed) had more GAD and specific phobia.

COMMENT

In this population-based sample of tortured Bhutanese refugees, male sex was identified as the only demographic predictor of reporting a history of torture. Other demographics (including membership in a political or human rights organization in Bhutan) did not predict torture status. Among the Nepali-speaking Bhutanese refugees from southern Bhutan, torture occurred across demographic groups.

Multivariate analyses of covariance showed an association between torture and psychiatric disorder. Risk ratios showed that each of the assessed disorders, except specific phobias, occurred more likely in the lifetime of a tortured refugee than it did in the lifetime of a nontortured refugee. Affective disorder and GAD were common lifetime disorders, but their much lower 12-month prevalence rates indicate that these disorders frequently remitted over time. With respect to 12-month disorders, tortured refugees were much more likely to report PTSD, dissociative (amnesia and conversion) disorders, and persistent somatoform pain disorder.

We found that 5 of every 6 tortured refugees had a lifetime disorder, and we noted a high rate of PTSD among tortured refugees. This is not inconsistent with data from the National Comorbidity Survey.[44] In this US community survey, about half of all rape survivors reported a lifetime history of PTSD. Torture, frequently involving the unspeakable, may be even more traumatic. The prevalence (14.5%) of lifetime PTSD among nontortured Bhutanese refugees was almost twice the rate reported by Americans in the National Comorbidity Survey.[44] High PTSD rates among nontortured refugees may be explained by refugees' increased risk of exposure to life-threatening events, other than torture. The high rates of dissociative (amnesia and conversion) disorders among tortured refugees are consistent with theory and research relating trauma and dissociation[45-47] and underscore the relevance of assessing amnesia and conversion in studies on the consequences of extreme stress.[48]

More than half (56%) of the nontortured refugees reported a lifetime disorder. Similarly, 2 large community surveys conducted in the US, the National Comorbidity Survey[29] and the Epidemiological Catchment Area study, have identified high rates of lifetime mental disorder among adults younger than 55 years (48% and 47%, respectively).[49] Such high rates of disorder are of concern for health care planning. However, diagnosis and need for treatment are not necessarily the same.[50,51] Our

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survey did not seek to identify severe mental disorder requiring immediate treatment. Nevertheless, the high rates of disorder in the Bhutanese refugee community argue for the presence of quality mental health services. Such services are typically not present in refugee camps.

Tortured and nontortured Bhutanese refugees experienced much medically unexplained pain, as is evident from the observed rates of persistent somatoform pain disorder. Further research is needed to assess whether and to what extent this unexplained pain results from physical or psychiatric disorders or from direct exposure to physical or mental trauma. The observed comorbidity between persistent somatoform pain disorder and PTSD among the tortured is consistent with previous research[52,53] noting a relation between medically unexplained somatic complaints and PTSD. Clinical experience suggests that these unexplained complaints are associated with mistaken beliefs in a damaged body.[30] The frequent reporting of somatic pain and somatoform symptoms of dissociation may also be related to response styles, inflating prevalence rates. For example, some of these symptoms may cover or tap into local idioms of expressing distress.[54]

We investigated demographic correlates of disorder among torture survivors. The finding that female torture survivors have more likely experienced a range of disorders not only is consistent with previous research indicating that women are at greater risk of affective and anxiety disorders[29] but also may be an indication of sociocultural stressors associated with being a woman in South Asia.[55] The finding that tortured Bhutanese refugees in intact marriages are less likely to have had anxiety disorders is consistent with research showing that Southeast Asian refugees in intact marriages have less depressive affect[56] and neuroticism.[57]

This survey has the following strengths and weaknesses. Even though the generalizability of findings beyond the specific context is unknown, a strength of the survey is that it involved a large population-based sample of tortured refugees living in a non-Western setting. Moreover, the comparison group, drawn from the same refugee camp population, was similar in terms of demography and refugee status, although theoretically the groups may have differed on variables not assessed. In contrast to other studies, we investigated a broad range of disorders through a structured psychiatric interview. Yet, determination of torture status was based on self-report, and retrospective assessment several years after the persecution may have led to underreporting of forgotten events and disorders.[58] Furthermore, the validity of the various CIDI diagnoses is still under investigation.[51] The WHO is investigating the comparability of diagnoses in different cultures assessed according to the *ICD* and *DSM* diagnostic systems using the Schedules for Clinical Assessment in Neuropsychiatry[59] and the CIDI. Preliminary results indicate that the outcome factor structure does not vary significantly across groups (Chris Nelson, PhD, WHO CIDI, written communication, April 7, 1999), suggesting construct validity of diagnoses.

This present survey indicates a greater risk for 12-month *ICD-10*[23] PTSD than did our first survey of *DSM-III-R*[60] PTSD among torture survivors, using data primarily from the same refugee group.[22] The 2 surveys, however, are not entirely comparable. The CIDI PTSD module, used in the present survey, may overestimate 12-month PTSD. In CIDI research, if respondents with lifetime PTSD report having had any PTSD symptoms within the last 12 months, they are diagnosed as having 12-month PTSD, possibly inflating the observed 12-month prevalence rate and risk ratio. Data of the first survey were collected in the refugees' own huts, possibly in the presence of other refugees, which may have resulted in an underestimate. In contrast, the present survey was conducted in a confidential environment. During the first survey, the preparation of the PTSD questions in Nepali involved lexical translation and testing only. For the second survey, we developed and applied a methodical approach to translation involving focus groups and blind-back translation. As we have shown elsewhere,[36] this approach provides a more understandable and equivalent translation.

Our data inform about clinical disorders that require more professional attention. Although there is increasing evidence of the efficacy of treatments for PTSD,[61] the literature does not yet indicate effective treatment for torture survivors with *ICD-10*[23] persistent somatoform pain and dissociative (amnesia and conversion) disorders. Service delivery efforts[62] and treatment outcome research should be augmented to target these disorders to improve care of tortured refugees.

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REFERENCES

1. Amnesty International. *Bhutan: Human Rights Violations Against the Nepali-Speaking Population in the South*. London, England: Amnesty International; 1992.
2. Amnesty International. *Bhutan: Forcible Exile*. London, England: Amnesty International; 1994.
3. Hutt M. Ethnic nationalism, refugees, and Bhutan. *J Refugee Stud*. 1996;9:397-420.
4. Ager A. *Mental Health in Refugee Populations: A Review*. Boston, Mass: Harvard Center for the Study of Culture and Medicine; 1993.
5. Boehlein JK, Kinzie JD. Refugee trauma. *Transcultural Psychiatr Res Rev*. 1995; 32:223-251.
6. Desjaralais R, Eisenberg L, Good B, Kleinman A. *World Mental Health: Problems and Priorities in Low-Income Countries*. New York, NY: Oxford University Press Inc; 1995.
7. de Girolamo G, McFarlane AC. The epidemiology of PTSD: a comprehensive review of the international literature. In: Marsella AJ, Friedman MJ, Gerrity ET, Scurfield RM, eds. *Ethnocultural Aspects of Posttraumatic Stress Disorder: Issues, Research, and Clinical Applications*. Washington, DC: American Psychological Association Press; 1996:33-86.
8. Orley J. Psychological disorders among refugees: some clinical and epidemiological considerations. In: Marsella AJ, Bornemann T, Ekblad S, Orley J, eds. *Amidst Peril and Pain: The Mental Health and Well-Being of the World's Refugees*. Washington, DC: American Psychological Association Press; 1994:193-206.
9. *Psychological Consequences of Disasters: Prevention and Management*. Geneva, Switzerland: World Health Organization, Division of Mental Health; 1992.
10. Goldfeld AE, Mollica RF, Pesavento BH, Faraone SV. The physical and psychological sequelae of torture. *JAMA*. 1988;259:2725-2729.
11. Kinzie JD, Boehlein JK, Leung PK, Moore C, Riley C, Smith D. The prevalence of PTSD and its clinical significance among Southeast Asian refugees. *Am J Psychiatry*. 1990;147:913-919.
12. Westermeyer J, Bouafuely M, Neider J, Callies A. Somatization among refugees: an epidemiologic study. *Psychosomatics*. 1989;30:34-43.

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Downloaded From: http://archpsyc.jamanetwork.com/ on 01/24/2017

13. Rasmussen OV. Medical aspects of torture. *Dan Med Bull*. 1990;37(suppl 1):1-88.
14. Somnier F, Vesti P, Kastrup M, Genefke IK. Psycho-social consequences of torture: current knowledge and evidence. In: Basoglu M, ed. *Torture and Its Consequences: Current Treatment Approaches*. Cambridge, England: Cambridge University Press; 1992:151-181.
15. Sundquist J, Johansson S-E. The influence of exile and repatriation on mental and physical health: a population-based study. *Soc Psychiatry Psychiatr Epidemiol*. 1996;31:21-28.
16. United Nations High Commissioner for Refugees [data]. Available at: http://www.unhcr.ch/un&ref/numbers/table2.htm. Accessed August 17, 2000.
17. Toole MJ, Waldman RJ. Refugees and displaced persons: war, hunger, and public health. *JAMA*. 1993;270:600-605.
18. Westermeyer J. Cross-cultural care for PTSD: research, training, and services needs for the future. *J Trauma Stress*. 1989;2:515-536.
19. Williams CL, Berry JW. Primary prevention of acculturative stress among refugees: application of psychological theory and practice. *Am Psychologist*. 1991;46:632-641.
20. Mollica RF, Donelan K, Tor S, Lavelle J, Elias C, Frankel M, Blendon RJ. The effect of trauma and confinement on functional health and mental health status of Cambodians living in Thailand-Cambodia border camps. *JAMA*. 1993;270:581-586.
21. Mollica RF, McInnes K, Pham T, Smith Fawzi MC, Murphy E, Lin L. The dose-effect relationships between torture and psychiatric symptoms in Vietnamese ex-political detainees and a comparison group. *J Nerv Ment Dis*. 1998;186:543-553.
22. Shrestha NM, Sharma B, Van Ommeren M, Regmi S, Makaju R, Komproe I, Shrestha GB, de Jong JTVM. Impact of torture on refugees displaced within the developing world: symptomatology among Bhutanese refugees in Nepal. *JAMA*. 1998;280:443-448.
23. World Health Organization. *International Classification of Diseases, 10th Revision (ICD-10)*. Geneva, Switzerland: World Health Organization; 1992.
24. Breslau N, Davis GC, Andreski P, Peterson E. Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Arch Gen Psychiatry*. 1991;48:216-222.
25. Breslau N, Davis GC, Andreski P. Risk factors for PTSD-related traumatic events: a prospective analysis. *Am J Psychiatry*. 1995;152:529-535.
26. Norris FH. Epidemiology of trauma: frequency and impact of different potential traumatic events on different demographic groups. *J Consult Clin Psychol*. 1992;60:409-418.
27. Holtz TH. Refugee trauma versus torture trauma: a retrospective controlled cohort study of Tibetan refugees. *J Nerv Ment Dis*. 1998;186:24-34.
28. Basoglu M, Paker M, Paker Ö, Ozmen E, Marks I, Incesu C, Sahin D, Sarimurat N. Psychological effects of torture: a comparison of tortured with nontortured political activists in Turkey. *Am J Psychiatry*. 1994;151:76-81.
29. Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51:8-19.
30. Sharma B, Van Ommeren M. Preventing torture and rehabilitating survivors in Nepal. *Transcultural Psychiatry*. 1998;35:85-97.
31. World Medical Association. The Declaration of Tokyo: 1975. *Dan Med Bull*. 1987;34:203-204.
32. *Composite International Diagnostic Interview (CIDI), Version 2.1*. Geneva, Switzerland: World Health Organization; 1997.
33. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Washington, DC: American Psychiatric Association; 1994.
34. Mollica RF, Caspi-Yavin Y, Bollini P, Truong T, Tor S, Lavelle J. The Harvard Trauma Questionnaire: validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *J Nerv Ment Dis*. 1992;180:111-116.
35. Flaherty JA, Gavira FM, Pathak D, Mitchell T, Wintrob R, Richman JA, Birz S. Developing instruments for cross-cultural psychiatric research. *J Nerv Ment Dis*. 1988;176:257-263.
36. Van Ommeren M, Sharma B, Thapa S, Makaju R, Prasain D, Bhattarai R, de Jong JTVM. Preparing instruments for transcultural research: use of the Translation Monitoring Form with Nepali-speaking Bhutanese refugees. *Transcultural Psychiatry*. 1999;36:285-301.
37. Van Ommeren M, Sharma B, Makaju R, Thapa S, de Jong JTVM. Limited cultural validity of the Composite International Diagnostic Interview's probe flow chart. *Transcultural Psychiatry*. 2000;37:123-134.
38. 48th World Medical Assembly. Declaration of Helsinki: recommendations guiding physicians in biomedical research involving human subjects. *JAMA*. 1997;277:925-926.
39. Silove D, Chang R, Manicavasagar V. Impact of recounting trauma stories on the emotional state of Cambodian refugees. *Psychiatr Serv*. 1995;46:1287-1288.
40. Jacomb PA, Jom AF, Rodgers B, Korten AE, Henderson AS, Christensen H. Emotional response of participants to a mental health survey. *Soc Psychiatry Psychiatr Epidemiol*. 1999;34:80-84.
41. Green SB. How many subjects does it take to do a regression analysis? *Multivariate Behav Res*. 1991;26:499-510.
42. Zhang J, Yu KF. What's the relative risk? a method of correcting the odds ratio in cohort studies of common outcomes. *JAMA*. 1998;280:1690-1691.
43. *Statistical Package for the Social Sciences* [computer program]. Version 6.1.3. Chicago, Ill: SPSS Inc; 1995.
44. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1995;52:1048-1060.
45. Cardeña E. The etiologies of dissociation. In: Krippner S, Powers SM, eds. *Broken Images, Broken Selves*. New York, NY: Brunner/Mazel; 1997:61-86.
46. Nijenhuis ERS, Spinhoven P, Vanderlinden J, van Dyck R, van der Hart O. Somatoform dissociative symptoms as related to animal defensive reactions to predatory imminence and injury. *J Abnorm Psychol*. 1998;107:63-73.
47. van der Kolk BA, Pelcovitch D, Roth S, Mandel FS, McFarlane A, Herman JL. Dissociation, somatization, and affect dysregulation: the complexity of adaptation to trauma. *Am J Psychiatry*. 1996;153(suppl):83-93.
48. Pelcovitch D, van der Kolk BA, Roth S, Mandel FS, Kaplan S, Resick P. Development of a criteria set and a Structured Interview for Disorders of Extreme Stress (SIDES). *J Trauma Stress*. 1997;10:3-16.
49. Regier DA, Kaelber CT, Rae DS, Farmer ME, Knauper B, Kessler RC, Norquist GS. Limitations of diagnostic criteria and assessment instruments for mental disorders: implications for research and policy. *Arch Gen Psychiatry*. 1998;55:109-115.
50. Spitzer RL. Diagnosis and the need for treatment are not the same [commentary]. *Arch Gen Psychiatry*. 1998;55:120.
51. Üstün TB, Chatterji S, Rehm J. Limitations of diagnostic paradigm: it doesn't explain "need" [letter]. *Arch Gen Psychiatry*. 1998;55:1145-1146.
52. Litz BT, Keane TM, Fisher L, Marx B, Monaco V. Physical health complaints in combat related posttraumatic stress disorder. *J Trauma Stress*. 1992;5:131-141.
53. Shalev A, Bleich A, Ursano RJ. Posttraumatic stress disorder: somatic comorbidity and effort tolerance. *Psychosomatics*. 1990;31:197-203.
54. Guarnaccia PJ, Good BJ, Kleinman A. A critical review of epidemiological studies in Puerto Rico. *Am J Psychiatry*. 1990;147:1449-1456.
55. Acarya M, Bennett L. *The Status of Women in Nepal*. Vol 2. Tribhuvan University, Nepal: Center for Economic Development and Administration; 1981:part 9.
56. Beiser M, Johnson PJ, Turner RJ. Unemployment, underemployment and depressive affect among Southeast Asian refugees. *Psychol Med*. 1993;23:731-743.
57. Lin KM, Tazuma L, Masuda M. Adaptational problems of Vietnamese refugees, I: health and mental health status. *Arch Gen Psychiatry*. 1979;36:955-961.
58. Wilhelm K, Parker G. Sex differences in lifetime depression rates: fact or artifact? *Psychol Med*. 1994;24:97-111.
59. Wing JK, Babor T, Brugha T, Burke J, Cooper JE, Giel R, Jablenski A, Regier D, Sartorius N. SCAN: Schedules for Clinical Assessment in Neuropsychiatry. *Arch Gen Psychiatry*. 1990;47:589-593.
60. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*. Washington, DC: American Psychiatric Association; 1987.
61. Chambless DL, Sanderson WC, Shoham V, Bennett-Johnson S, Pope KS, Crits-Christoph P, Baker M, Johnson B, Woody SR, Sue S, Beutler L, Williams DA, McCurry S. An update on empirically validated therapies. *Clin Psychol*. 1996;49:5-18.

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drops further rather than continue treatment with the medication with close observation. This is critically important in treatment-resistant patients who may respond to few medications, or who are violent when psychotic. Platelet and WBC counts may not completely normalize but may stabilize enough to safely continue treating the patient with the antipsychotic medication.

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1. McEvoy JP, Scheifler PL, Frances A. The expert consensus guideline series: treatment of schizophrenia. *J Clin Psychiatry*. 1999;60(suppl 11):3-80.
2. Wesson ML, Finnegan DM, Clark PI. Continuing clozapine despite neutropenia. *Br J Psychiatry*. 1996;168:217-220.
3. Shaper AG, Lewis P. Genetic leukopenia in people of African origin. *Lancet*. 1971;2:1021-1023.

Correction

Error in References. In the Original Article by Van Ommeren et al titled "Psychiatric Disorders Among Tortured Bhutanese Refugees in Nepal," published in the May issue of the ARCHIVES (2001;58:475-482), reference 62 was accidentally omitted from the reference list on page 482. Reference 62 should have read as follows: "Van Ommeren M, Sharma B, Prasain D, Poudyal BN. Helping torture survivors in Nepal: a public mental health perspective. In: de Jong JTVM, ed. *Trauma and War: A Public Mental Health Approach*. New York, NY: Plenum Publishing Corp. In press." The journal regrets the error.

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