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ORIGINAL PAPER

Derrick Silove · Zachary Steel · Adrian Bauman · Tien Chey · Alexander McFarlane

Trauma, PTSD and the longer-term mental health burden amongst Vietnamese refugees

A comparison with the Australian-born population

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Abstract *Background* Uncertainty persists about the impact of trauma on the long-term mental health of resettled refugees. The present study aimed to assess the contributions of trauma and PTSD to overall mental disorder and related need for services amongst Vietnamese refugees resettled for over a decade in Australia. The data were compared with a survey of the host population. *Method* The study involved a probabilistic sample of Vietnamese refugees (n = 1,161) resettled in Australia for 11 years. The Australian-born sample (n = 7,961) was drawn from a national survey using the same diagnostic measure, the Composite International Diagnostic Interview (CIDI). *Results* The PTSD prevalence for both groups was 3.5% and the diagnosis was present in 50% of Vietnamese and 19% of Australians with any mental disorder(s). Trauma made the largest contribution to mental disorder in the Vietnamese (odds ratio >8), whereas amongst Australians, younger age (odds ratio >3) and trauma (odds ratio >4) each played a role. PTSD was equally disabling in both populations but Vietnamese with the disorder reported more physical, and Australians more mental disability. Approximately one in three Australians and one in 10 Vietnamese with PTSD sought help from mental health professionals. *Conclusions* Trauma and PTSD continue to affect the mental health of Vietnamese refugees even after a decade of resettlement in Australia. The tendency of Vietnamese with PTSD to report symptoms of physical disability may create obstacles to their obtaining appropriate mental health care.

Key words PTSD – refugee – Vietnamese – epidemiology – trauma – mental disorders

Prof. D. Silove (✉)
Psychiatry Research and Teaching Unit
Level 1
Mental Health Centre
Liverpool Hospital
Liverpool (NSW), 2170, Australia
Tel.: +61-2/961-64311
Fax: +61-2/9602-5917
E-Mail: d.silove@unsw.edu.au

Prof. D. Silove · Z. Steel · T. Chey
Centre for Population Mental Health Research
Sydney South West Area Health Service and Psychiatry Research and Teaching Unit
School of Psychiatry, University of New South Wales
Sydney (NSW), Australia

Prof. A. Bauman
School of Public Health
University of Sydney
Sydney (NSW), Australia

Prof. A. McFarlane
The Centre of Military and Veteran's Health
University of Adelaide
Adelaide (SA), Australia

Introduction

The impact of mass trauma on the mental health of resettled refugees remains a contested area [14, 33]. Although there is ample evidence indicating that recently resettled refugee groups have high levels of distress [33, 39], there is a relative paucity of comparable data for long-settled refugees.

It has been argued that the gross human rights violations experienced by persons fleeing persecution may, generate more severe and long-lasting psychological consequences than do the traumas of everyday civilian life [18]. Yet it remains unclear if exposure to such severe forms of trauma translates into an overall increase in mental health burden amongst affected populations an issue that can only be clarified by epidemiological comparisons with host populations. That question is of special relevance given that a recent meta-analysis [6] found a lower than expected average prevalence of PTSD (9%) amongst resettled refugees, although substantial differences emerged across studies. Variation in the rigor of past meth-

odologies may be partly responsible [6, 28], with shortcomings including inadequacies in sample size, non-random sampling, failure to employ standard diagnostic interview instruments and the use of interpreters rather than same-language interviewers.

Length of resettlement of refugee populations may be another factor accounting for the variability in rates of PTSD and other relevant disorders across studies. It seems likely that resettlement in stable environments might mitigate traumatic stress reactions in refugees [28, 33], but there are few rigorous epidemiological studies investigating that issue, and those that have been undertaken present a somewhat inconsistent picture. A recent study of 490 Cambodians resettled for over two decades in the US [21], using the Composite International Diagnostic Interview, published subsequent to the Fazel et al. [6] meta-analysis, reported a 12-month prevalence for PTSD of 62%, a very high rate. In contrast, two earlier longitudinal studies of South East Asian refugees resettled in North America (involving persons of Vietnamese and Hmong background, respectively) [2, 42], found more moderate levels of distress and a progressive reduction in symptoms over a period of a decade. In one study, the prevalence of residual symptoms at 10 years was lower than amongst the host population [2]. These two longitudinal studies predated the use of structured diagnostic interviews, however, and they did not assess specifically for PTSD. In an earlier analysis of the dataset reported herein, we undertook a retrospective examination of the trajectory of mental disorders (anxiety, mood and substance use disorders) in Vietnamese refugees resettled in Australia for an average of 11 years [37]. Our findings suggested a graduated but substantial decline in overall symptoms over the period of resettlement.

The extent of pre-migration trauma exposure may explain some of the variations in PTSD rates across refugee studies. The recent study of Cambodian refugees [21] involved survivors of the Khmer Rouge autogenocide, all of whom had been exposed to multiple and repeated forms of gross human rights violations. Although the longstanding war in Vietnam resulted in extensive trauma [19, 27], especially in subgroups such as political prisoners [24], direct exposure to violence and persecution was variable across the population as a whole, possibly explaining the lower rates of mental disorder recorded amongst refugees from that ethnic group [6, 10, 13, 36].

A related issue is the extent to which post-traumatic stress reactions such as PTSD are associated with ongoing functional impairment, particularly in the longer term. A number of authors have questioned the salience of PTSD in generating adaptive difficulties amongst refugee populations [38], particularly given the multifarious range of other practical challenges that such populations face (social, cultural, linguistic, employment, housing etc.) [31, 34]. Also a singular focus on PTSD may obscure the wider range of mental disorders associated with human-instigated trauma, indicating a need for researchers to broaden the scope of studies to include outcomes such as depression, anxiety and substance use disorders [6, 15, 32].

The apparent underutilization of mental health services by refugee groups such as the Vietnamese has been noted repeatedly [7, 33, 41]. Reasons offered in the literature include culturally-related stigma associated with mental disorder [41], a tendency for communities, for example from Asia, to somatize psychological distress [12], lack of affinity or access to mainstream services [7, 41], and the avoidant behaviours associated with specific disorders such as PTSD [35]. Nevertheless, to determine definitively whether the Vietnamese or any other minority group underutilizes services, it is necessary to match two sources of information: the population rate of the designated disorder within that community and the use of various services for that condition. That data then needs to be compared with the corresponding patterns in the host population. As yet, such definitive comparisons have not been undertaken.

Aims

The objectives of the study were: 1. To investigate the contribution of trauma and PTSD to the overall prevalence of mental disorders amongst Vietnamese refugees and the host Australian-born population; 2. To assess the association between PTSD and ongoing disability in both groups; and 3. To gauge patterns of service utilization for PTSD across the two populations.

Materials and methods

Sampling

Vietnamese

The study methodology has been described in full elsewhere [36]. The investigation was based on a multistage probability sample of Vietnamese refugees residing in Sydney, Australia. Recruitment involved a probability proportional-to-size cluster sample of census tracts across five Local Government Areas covering 41, 487 Vietnamese, representing 75% of that ethnic group residing in the state of New South Wales. Population densities for the Vietnamese group in the identified areas ranged from 2% to 45%. House-to-house screening of 6,224 dwellings across 44 census tracts identified 1,413 residences housing at least one Vietnamese person aged 18 years or over. A Kish grid was used to randomly select one household respondent for interview with 1,161 persons agreeing to participate (response rate = 82%). Interviews were conducted by one of 34 bilingual lay-interviewers. All interviewers received 40 hours of initial training in the administration of the research instrument as well as ongoing supervision. The research instrument was fully computerized to ensure standardization of administration and scoring. Interviews were conducted in Vietnamese (98.6%) or in English (1.4%), depending on the preference of participants.

Table 1 Harvard Trauma Questionnaire items and CIDI trauma categories

CIDI 2.0 Trauma Categories	Trauma Categories used in Vietnam Survey
Direct combat	Combat situation
Life threatening accident	Life threatening accident
	Being close to death
	Lack of food or water
	Ill health without access to medical care
Natural disaster	Natural disaster
Witnessing serious injury or killing	Witnessing someone being badly injured or killed
	Murder of stranger or strangers
Rape	Rape
Sexually molested	Sexual molestation
	Witnessing rape or sexual abuse
Attacked or injured	Sustaining a serious injury
	Physically attacked or assaulted
Threatened with a weapon or terrorized	Being threatened with a weapon, held captive or kidnapped
	Being tortured or the victim of terrorists
	Brain washing/re-education
	Forced isolation from others
	Imprisonment
Other stressful event	Lack of shelter
	Forced separation from family members
	Other extremely stressful events
Shock someone close	Events happening to someone close to you.
	Murder of family or friends
	Unnatural death of family or friend

Australian Bureau of Statistics (ABS) Survey of Mental Health and Wellbeing

The ABS mental health survey was undertaken around the same time and the methods and results have been fully described previously [11]. The survey involved an Australia-wide stratified multistage probability sample of 13,624 private dwellings. Interviews were conducted with 10,641 persons randomly selected from each household (response rate = 78%). For the present study, the 7,961 persons born in Australia (hereafter "Australians") were extracted.

Survey instruments

Diagnostic assessment

Both surveys applied the Composite International Diagnostic Interview (CIDI 2.0), a lay administered structured interview, widely employed in international epidemiological studies [1]. Interviewers entered CIDI responses directly into a computer. The present analysis included the 12-month ICD-10 rates of high prevalence disorders, namely the anxiety (panic disorder, agoraphobia, social phobia, generalized anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder), mood disorders (depression, dysthymia, mania, hypomania and bipolar disorder) and substance use disorders (alcohol and substance harmful use/abuse and dependence). Consistent with the aims of the present report, this article focusses on respondents diagnosed with PTSD as well as a broader aggregate of respondents diagnosed with anxiety, mood or substance use disorders.

Disability

Both surveys included the Medical Outcomes Study Short Form 12 (SF-12) [8], a measure that yields scores for physical (PCS) and mental (MCS) functioning calculated according to a standard algorithm (lower scores indicate higher levels of disability). Scores for each component were categorized as: no or mild disability (40 or above) and moderate to severe disability (below 39) [30]. Two standard questions assessed the number of disability days arising from an inability or reduced capacity to work or to carry out normal duties because of ill-health [30]. Three categories were derived [30]: no days of disability; 1–5 days of disability; and 5+ days of disability.

Service utilization

The two surveys used the same protocol to document contact with health care providers, for general or mental health, in the previous 12 months. Service providers included primary care physicians; mental health practitioners (psychiatrist, psychologist, social worker, welfare worker, drug and alcohol counsellor, other counsellor or a public community mental health team); and, for the Vietnamese sample, traditional healers (usually a Chinese doctor). For each category of service, respondents were asked how many consultations were made during the previous 12 months and whether any of these consultations were related to mental problems such as stress, anxiety, depression or dependence on drugs or alcohol.

Lifetime exposure to trauma

The CIDI PTSD module assessed lifetime exposure to trauma according to 10 broad categories, with a residual category for "other traumatic events" (see Table 1). The ABS study method aggregated two CIDI questions 'Have you ever been threatened with a weapon, held captive or kidnapped?' and 'Have you ever been tortured or the victim of terrorists?'. Since the Vietnamese were a war-affected and displaced population, we deemed it important to incorporate a full range of their relevant traumatic experiences [14]. The CIDI trauma events schedule was expanded, therefore, to include 14 additional experiences derived from the Harvard Trauma Questionnaire [22] designed specifically for use amongst Southeast Asian refugees. In order to enable quantitative comparisons between the two datasets, the 14 HTQ trauma events were mapped to the 10 CIDI categories (see Table 1). The effect was to

Table 2 Weighted sample characteristics of the Vietnamese (n = 1,161) and the Australian-born samples (n = 7,961)

	Vietnamese		Australians	
Gender				
Male	577	49.7%	4,122	51.8%
Female	584	50.3%	3,839	48.2%
*Age***				
18–24	192	16.5%	1,193	15.0%
25–34	326	28.1%	1,775	22.3%
35–44	346	29.8%	1,654	20.8%
45–54	157	13.5%	1,268	15.9%
55–64	52	4.5%	857	10.8%
65+	88	7.6%	1,215	15.3%
Marital status				
Never married**	313	26.9%	1,834	23.0%
Married/de facto	739	63.7%	5,038	63.3%
Separated/divorced	74	6.4%	619	7.8%
Widowed**	33	2.9%	471	5.9%
*Employment status****				
Employed	509	86.7%	5,135	94.1%
Unemployed	78	13.3%	323	5.9%
*Main source of income****				
Government benefits	460	39.6%	2,186	27.5%
Other	701	60.4%	5,774	72.5%
*Household tenure****				
Owner/Purchaser	375	32.3%	5,037	63.3%
Rent/Other	786	67.7%	2,924	36.7%
Education				
At school	74	6.3%	39	0.5%
Less than 12 years	608	52.4%	4,629	58.1%
Completed High school equivalent	217	18.7%	1,179	14.8%
Additional vocational or tertiary***	255	22.0%	2,113	26.6%
Time in Australia (years)	11.2	(5.9)		N/A

** $P < 0.01$, *** $P < 0.001$

collapse the large pool of HTQ items into a smaller number of CIDI categories, a conservative approach that reduced the number of trauma endorsements for Vietnamese participants.

Statistical methods

Both samples were weighted by the sampling probability and post-stratification age and sex distributions of the relevant source populations [20]. For the Vietnamese sample, weights were adjusted for the number of eligible persons in the household, the sampling probability of the census tract, and the age and sex distribution of the NSW Vietnamese population. Standard errors of prevalence estimates were calculated with the use of the SAS software package adjusting for clustering effects. For the Australian sample, the ABS weights adjusted for household composition and sample characteristics. The ABS applied a post-stratification Jackknife method that used 30 replicate weights for calculating standard errors of the prevalence estimates.

Demographic characteristics of the two surveys are presented as weighted counts and percentage prevalence estimates. Chi-square tests were used to compare categorical variables. A logistic regression analysis was applied for each population to investigate a predictor model, with trauma and demographic variables as the independent variables and aggregated cases of mental disorder as the outcome index. The c-statistic, a rank correlation coefficient [16], tested the model's accuracy in discriminating between cases and non-cases of mental disorder. For binary data, the c-statistic is equivalent to the area under the receiver operating characteristic (ROC) curve, providing an index of fit that is independent of prevalence estimates and sample size [16]. The c-statistic produces values ranging from 0.5 to 1, with 0.5 indicating a chance association and 1 a perfect prediction. A c-statistic between 0.6 and 0.7 reflects a moderate level of fit, between 0.7 and 0.8 a good fit, and a value between 0.8 and 0.9 an excellent fit, with higher values rarely being observed in general population studies.

Translation-back translation

The measures were translated into Vietnamese using established translation and blind-back translation methods [3]. An independent Vietnamese mental health specialist reviewed the original and translated versions to identify any minor inaccuracies that were then reconciled by a panel of seven bilingual health care interpreters.

The Human Research Ethics Committee of The Flinders University of South Australia approved the study.

Results

Demographic data

Table 2 displays the weighted sample characteristics of the two samples. The Vietnamese were younger and more Vietnamese fell into the never married category, whereas Australians were slightly more likely to be widowed.

Vietnamese had similar levels of educational attainment overall, but with lower levels of tertiary education. The Vietnamese showed evidence of greater social disadvantage with lower rates of work participation, home ownership and a greater reliance on government benefits.

Table 3 Lifetime exposure to trauma for Vietnamese (n = 1,161) and Australians (n = 7,961)

Trauma type	Vietnamese			Australian	
	% Pre migration	Trauma exposure		Trauma exposure	
		Count	%	Count	%
Direct combat**	97.1	69	6	200	2.5
Life threatening accident*	86.4	352	30.3	1,611	20.2
Natural disaster*	92.1	164	14.1	1,342	16.9
Witnessing serious injury or killing**	85.8	225	19.4	2,019	25.4
Rape**	100	3	0.2	261	3.3
Sexually molested**	95.5	22	1.9	563	7.1
Attacked or injured	66.3	104	8.9	771	9.7
Threatened with weapon or terrorised*	87.8	188	16.2	889	11.2
Other stress event**	69.2	263	22.7	821	10.3
Shock someone close**	71.0	155	13.4	829	10.4
1–2 trauma types		451	38.8	3,248	40.8
3 or more trauma types*		217	18.7	1,257	15.8

Contrasts between percentage of Vietnamese and Australian reporting exposure to individual trauma categories, * P-value <0.05; ** P-value <0.01

Trauma categories

Table 3 lists the categories of trauma exposure endorsed by the two samples. Vietnamese reported higher exposure to direct combat; life threatening accidents; torture or being terrorized; violence to someone close; and other stressful events not covered by the CIDI. In contrast, Australians had higher exposure to natural disasters; witnessing serious injury or killing; and rape and sexual molestation. Australians and Vietnamese reported a similar rate of exposure to one or two traumas, but a higher proportion of Vietnamese reported exposure to 3+ trauma categories. The vast majority of trauma categories reported by Vietnamese (84%) occurred whilst participants lived in Vietnam or during the period of transit to Australia (see Table 3).

Prevalence of mental disorder

Table 4 presents the prevalence of overall mental disorder, PTSD and trauma exposure. For Australians, the 12-month prevalence for ICD-10 mental disorders was 18.6% and for PTSD, 3.5%, with PTSD being diagnosed amongst 19% of the those with any mental disorder. The prevalence for all ICD-10 mental disorders amongst the Vietnamese was 6.9% with the rate for PTSD also being 3.5%, but that category was diagnosed in 50% of Vietnamese with any mental disorder, a substantial difference compared to Australians ($\chi^2_{(1)} = 48.8$, $P < 0.01$). Comorbidity of PTSD with other mental disorders was lower amongst the Vietnamese (35.2%) than amongst Australians (65.4%) ($\chi^2 = 13.69$, df = 1, $P = 0.0002$).

Effects of age

For Australians, the overall prevalence of mental disorder and PTSD decreased with age, with the oldest age group showing a statistically lower prevalence of PTSD ($\chi^2_{(1)} = 196.0$, $P < .01$, see Table 4). The opposite pattern was evident for the Vietnamese, with risk of mental illness, and particularly PTSD, increasing with age, a significant difference between the two populations ($\chi^2_{(1)} = 96.9$, $P < 0.01$). Table 4 also shows that Australians of all age groups reported similar levels of trauma exposure while Vietnamese showed an increasing level of trauma exposure by age, a pattern that was statistically significant.

A predictive model

A multivariate logistic regression analysis assessed the contributions of socio-demographic factors (age, education, employment status, household tenure, marital status and pension status) and trauma to the overall burden of mental disorder for each population. For the Vietnamese, the analysis yielded a c-statistic (0.78) that approached the level of an excellent fit (>0.8) with trauma emerging as the only statistically significant predictor. Participants reporting three or more trauma events had an 8-fold (8.2) risk of mental disorder. For Australians, the same model produced a c-statistic at the lower level of a good fit (0.72). Due to the large sample size, most demographic variables were statistically associated with risk amongst Australians, albeit with relatively low odds ratios: (unemployment [1.5], absence of household tenure [1.4], being on a pension [1.4]). The highest odds ratios emerged for the Australian subgroup reporting three or more traumas (4.4) and for younger (18–34, OR = 3.5) and middle aged (35–54, OR = 3.1) Australians.

Since trauma in both samples and age in the Australian sample produced the largest odds ratios, we extracted these predictors for a more refined regression analyses. In the Vietnamese, the trauma

Table 4 Prevalence of ICD-10 mental disorder, PTSD and trauma: Australians and Vietnamese

	Weighted estimates (%)	Prevalence by age group			χ^2-test for age trends	Comparison Australian versus Vietnamese	
		18–34	35–54	55+		All	By age trends
Australians							
Weighted sample, *N*	7,961 (100)	2,967	2,921	2,072			
All ICD-10 mental illness							
n (% of population)	1479 (18.6)	722 (24.3)	584 (20.0)	173 (8.4)	$\chi^2_{(1)} = 196.0$**		
Odds ratio		1.00	0.78	0.28			
With ICD-10 PTSD							
n (% of population)	275 (3.5)	132 (4.4)	117 (4.0)	26 (1.3)	$\chi^2_{(1)} = 34.2$**		
Odds ratio (population)		1.00	0.90	0.27			
n (% of MI)	275 (19)	132 (18.2)	117 (20.1)	26 (15.2)	$\chi^2_{(1)} = 0.15$ ns		
Odds ratio (MI)	–	1.00	1.12	0.79			
Trauma count (MI), mean (sd)	1.8 (1.7)	1.8 (1.7)	1.9 (1.7)	1.8 (1.6)	$t = 0.95$ ns		
Trauma count (PTSD), mean (sd)	3.0 (1.6)	2.8 (1.6)	3.2 (1.8)	3.0 (1.5)	$t = 1.49$ ns*		
Vietnamese							
Weighted sample, *N*	1161 (100)	518	503	140			
All ICD-10 mental illness							
n (% of population)	80 (6.9)	25 (4.8)	43 (8.5)	13 (9.0)	$\chi^2_{(1)} = 5.95$*	$\chi^2_{(1)} = 96.9$**	$\chi^2_{(1)} = 31.03$**
odds ratio		1.00	1.84	2.02			
With ICD-10 PTSD							
n (% of population)	40 (3.5)	10 (1.9)	23 (4.6)	8 (5.7)	$\chi^2_{(1)} = 7.06$**	$\chi^2_{(1)} = 0.018$ ns	$\chi^2_{(1)} = 20.16$**
Odds ratio (population)		1.00	2.43	3.08			
n (% of MI)	40 (50.0)	10 (39.3)	23 (53.4)	8 (62.1)	$\chi^2_{(1)} = 1.81$ ns	$\chi^2_{(1)} = 48.8$**	$\chi^2_{(1)} = 1.94$ ns
Odds ratio (MI)	–	1.00	1.73	2.40			
Trauma count (MI), mean (sd)	3.0 (2.1)	2.1 (2.1)	3.1 (2.0)	4.1 (1.6)	$t = 2.96$**	$t = 6.06$**	$t = 2.04$*
Trauma count (PTSD), mean (sd)	3.6 (1.5)	2.7 (0.7)	3.8 (1.6)	3.9 (1.5)	$t = 1.82$ ns	$t = 2.23$*	$t = 2.36$*

PTSD = post-traumatic stress disorder; MI = mental illness (including PTSD)
ns = statistically not significant; * *P*-value <0.05; ** *P*-value <0.01

Table 5 SF-disability and days out of role in the 4 weeks prior to interview for Vietnamese and Australians with PTSD

	Vietnamese *n* = 1,161		Australians *n* = 7,961	
	PTSD (*n* = 40) %	No mental illness (*n* = 1,081) %	PTSD (*n* = 275) %	No mental illness (*n* = 6,481) %
Level of disability (Mental)				
None/Mild (SF-12 score ≥40)	71.2	92.1	54.7	95.5
Moderate/severe (SF-12 score 30–39)	28.8	7.9	45.3	6.5
Comparison with Australians	$\chi^2_{(1)} = 3.81$*	$\chi^2_{(1)} = 2.8$ ns		
Level of disability (Physical)				
None/Mild (SF-12 score ≥40)	40.5	84.0	71.2	83.8
Moderate/severe (SF-12 score 30–39)	59.5	16.0	28.8	16.2
Comparison with Australians	$\chi^2_{(1)} = 15.5$**	$\chi^2_{(1)} = 0.02$ ns		
Total days of disability				
No days	38.3	76.4	34.2	70.5
1–5 days	20.9	12.7	27.3	17.5
>5 days	40.8	10.9	38.5	12
Comparison with Australians	$\chi^2_{(2)} = 0.95$ ns	$\chi^2_{(2)} = 18.3$**		

ns = not significant; * *P*-value <0.05; ** *P*-value <0.01

count alone yielded a *c*-statistic of 0.74, with an interaction between trauma and age improving the model modestly to 0.78. The overall *c*-statistic was equivalent to that produced in the prior regression that included all demographic variables. For Australians, the overall *c*-statistic for trauma (0.64) was lower than for the Vietnamese. The inclusion of age, with the addition of an interactive term (trauma * -age) achieved only a moderate improvement in fit (0.70).

Disability

According to the SF (Table 5), Vietnamese with PTSD reported greater levels of physical disability while affected Australians reported more mental disability.

Table 6 Health services utilization in the 12 months prior to interview

	Vietnamese (n = 1,161)		Australians (n = 7,961)		
	PTSD (n = 40) %	No mental illness (n = 1,081) %	PTSD (n = 275) %	No mental illness (n = 6,481) %	Differences by population
Consultation with any health professional					
General health visits	88.8	76.6	91.3	86.1	ns
Mental health consults	27.1	4.6	47.3	5.6	*
Consultation with primary care physicians					
General consults	88.8	74.9	85.6	81	ns
Mental health consults	19.2	4.1	35.9	3.9	*
Consultation with mental health professionals	9.4	0.3	28.9	3.2	**
Consultation with traditional healers					
General Consults	43	16.2	–	–	–
Mental health consults	3.4	0.8	–	–	–

[a] Chi-square test using Exact limits for significant difference between Australian-born and Vietnam-born prevalence. ns = not significant; * P-value <0.05; ** P-value <0.01

Both groups with PTSD reported a similar elevation in the number of days out of role.

Health service utilization

Table 6 presents health service data for PTSD in the preceding 12-months. Australians and Vietnamese with PTSD had high rates of general health consultations overall, and specifically with primary care physicians. Australians with PTSD were almost twice as likely as affected Vietnamese to indicate that these primary care consultations were for a mental health problem. Approximately one in 10 Vietnamese compared to one in three Australians with PTSD consulted a specialist mental health professional. Vietnamese with PTSD rarely consulted traditional healers for mental health problems.

Discussion

Strengths and limitations of the study

The present study represents one of the largest epidemiological investigations undertaken amongst a refugee population in a resettlement country of the West [6]. It is also unusual in comparing a long-settled refugee group with the host population using a standard diagnostic instrument and the same disability and service utilization measures. As such, the study offers an opportunity to compare the impact of trauma and PTSD on overall mental disorder, disability and help-seeking behaviour across the two populations. Response rates were high and similar in both populations, with probabilistic sampling frames ensuring representativeness of the target populations.

General constraints of the study need to be acknowledged. Like other epidemiological studies of its kind, the investigation focussed on high prevalence disorders only, excluding less common but severe disorders such as schizophrenia [17]. Although a standard approach was used to translate and back-translate the measures, the risk of transcultural error remains given the reliance on a Western-derived measure of mental disorder. Yet the interpretable pattern of the results supports the validity of the data, confirming established relationships in the refugee field, for example, links between trauma exposure, PTSD and disability [25, 26].

Since the study is limited to one ethnic group, the results may not be fully generalizable to other refugee populations. Rates of PTSD have tended to be lower amongst the Vietnamese [6, 9, 10, 13] in comparison, for example, with Cambodian refugees [4, 9, 21, 23]. Hence, the present findings are likely to present a conservative estimate of the long-term trauma-related mental health needs of refugee groups overall. The particular sampling strategy applied to recruit Vietnamese favoured that sector of the population (75%) that lived in ethnically dense localities. The population base of the two samples also differed somewhat with the Vietnamese residing in the state of NSW, whereas the ABS study involved a nationally representative sample, although any minor regional differences in Australia are not likely to have introduced substantial bias.

Recall bias and/or stigma associated with reporting certain traumas need to be considered. The Vietnamese may have under-reported sexual abuse because of cultural constraints. If so, the effect would have been to attenuate rather than strengthen the differences between the two population groups. In more general terms, comparing populations with diverse histories—particularly where one is a refugee group and the other a civil society unaffected by war—represents a substantial challenge to the field, since any single inventory is unlikely to capture adequately the experiences of both groups [14, 18, 32]. The trauma categories included in the CIDI were

appropriate for the Australian-born population, but were constrained when detailing the wide range of war traumas experienced by the Vietnamese [14], a consideration that led us to add context-specific items from the HTQ. At the same time, increasing the number of trauma categories for Vietnamese participants could, in theory, encourage a higher frequency of reporting of trauma exposure. To address this possibility, the study mapped the categories of trauma back to those assessed by the CIDI, a process that resulted in collapsing HTQ categories. The overall effect of this process was to reduce the number of trauma categories for the Vietnamese producing a more conservative estimate of trauma exposure. Even after that procedure, the Vietnamese reported higher average levels of trauma exposure overall, a pattern consistent with the well-documented history of violence and displacement experienced by that group [10, 29].

The relationship of trauma with older age amongst the Vietnamese also conferred validity on the results. When the study was undertaken in 1999, those refugees who had been combat-aged adults during the war in the homeland were in the senior age bands. It would be expected that the older age group might have been more culturally constrained in revealing sensitive, personal information, yet they reported greater levels of trauma exposure and psychiatric symptoms. That pattern suggests that cultural constraints may not have been an overwhelmingly inhibiting factor in relation to self-disclosure of either trauma experiences or psychiatric symptoms.

Summary of results

Trauma and mental disorder

The data reflect the body of studies undertaken amongst Vietnamese refugees in showing a modest prevalence of trauma-related mental disorder in that group [2, 6, 9, 10, 13]. It is particularly noteworthy that the overall burden of mental illness was substantially lower amongst the Vietnamese population than the general Australian population, suggesting that after 11 years of resettlement, Vietnamese refugees had better mental health outcomes than their host compatriots. Since there are no comparable data from Vietnam, we cannot determine whether the low prevalence of mental disorder found amongst Vietnamese in Australia reflects an overall ethnic trend. In addition it remains unknown whether ethno-specific factors differentially influenced symptom endorsement rates. A study is underway in Vietnam to examine these issues in more detail.

The rate of PTSD (3.5%) yielded was similar across the two populations. We note that, consistent with past research, the ICD-10 rate was higher than the DSM-IV PTSD prevalence of 1.5% [36]. Similarly, both populations exhibited the predicted dose–response relationship between trauma and PTSD [25]. Human-instigated trauma was also common amongst Australians, and that type of trauma has been found to incur greater levels of PTSD [5]. That pattern may account in part for the comparability in PTSD rates between the two samples.

The key finding was that in spite of a modest prevalence amongst the Vietnamese population, PTSD made a substantial contribution to the overall burden of common mental disorder, being present in 50% of those with any condition (compared to 19% for Australians). The diagnosis also occurred much more frequently on its own whereas amongst Australians, comorbidity was common. In addition, trauma exposure emerged as the sole predictor of aggregated mental disorder amongst the Vietnamese, with the overall model approaching an excellent level of fit. This was particularly salient given that 84% of all trauma reported by the Vietnamese occurred during the pre-migration period, when they were refugees. For Australians, the model reached the lower level of a good fit with trauma and younger age each making an equivalent contribution.

The present findings, taken together with previous analyses of the dataset [37], offer a more comprehensive understanding of the role of trauma in shaping the trajectory of mental health amongst resettled refugees. As detailed in a previous report, Vietnamese refugees appear to have experienced a gradual but progressive improvement in trauma-related mental disorder over an average of 11 years of resettlement in Sydney [37]. At the same time, as indicated by the present analysis, the residual impact of trauma after 11 years remained substantial, being the largest of the measured predictors of mental disorder. Hence, the study suggests that although there is potential for refugees to recover from trauma-related mental disorder over an extended period of time after resettlement, there continues to be a residual group with PTSD who contribute substantially to the overall mental health burden in that community.

Disability and help-seeking

PTSD generated comparable levels of disability across the host and Vietnamese populations, with both groups reporting a similar number of days out of role associated with the diagnosis. The Australians tended to report disability associated with mental problems whereas the Vietnamese reported more physical impairments, suggesting that the Vietnamese focus on the somatic symptoms of PTSD, a pattern found amongst other Asian groups [40]. Only a minority of persons with PTSD consulted medical practitioners for a mental health problem, but Australians with PTSD were three times more likely than Vietnamese to consult a specialist mental health professional.

Vietnamese rarely consulted traditional healers for PTSD-related problems. Hence the study provides definitive data indicating that Vietnamese refugees do underutilize mental health services for PTSD compared to the host population. Although several barriers (language, access, cost and stigma) in combination may be responsible for this pattern [41], one factor may be the cultural tendency to somatize distress.

Conclusions

In concert with previous analyses, the present study offers further clarification of the importance of trauma and PTSD to refugee mental health. On the one hand, Vietnamese refugees resettled for over a decade in Australia appeared to have experienced substantial improvements in their mental health [37], with the prevalence of residual PTSD being modest. Nevertheless, war trauma continued to have a deleterious impact on mental disorder 11 years after resettlement and PTSD contributed substantially to ongoing disability. Trauma also was important to mental health burden in the host population, but other factors, particularly younger age, made an independent contribution. For both populations, use of specialist mental health services for PTSD was low. Nevertheless, that pattern was particularly marked in Vietnamese, with their tendency to somatize symptoms potentially adding to other barriers to recognizing the disorder (possibly by patients and doctors alike) and hence receiving appropriate care. More assertive and targetted community awareness campaigns and culturally-appropriate services are needed to ensure that refugees with disabling trauma-related mental disorders are properly assessed and receive appropriate specialist mental health care.

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