

Effects of Post-migration Factors on PTSD Outcomes Among Immigrant Survivors of Political Violence

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Abstract This study examined the predictors of post-traumatic stress disorder (PTSD) in a clinical sample of 875 immigrant survivors of political violence resettled in the United States, with a specific aim of comparing the relative predictive power of pre-migration and post-migration experiences. Results from a hierarchical OLS regression indicated that pre-migration experiences such as rape/sexual assault were significantly associated with worse PTSD outcomes, as were post-migration factors such as measures of financial and legal insecurity. Post-migration variables, which included immigration status in the US, explained significantly more variance in PTSD outcomes than premigration variables alone. Discussion focused on the importance of looking at postmigration living conditions when treating trauma in this population.

Keywords PTSD · Immigrants · Mental health · Political violence

Background

Survivors of political violence, which includes individuals forced to flee their country due to political persecution as well as those who have been subject to physical or psychological torture at the hands of government actors, evidence high rates of anxiety disorders such as posttraumatic stress disorder (PTSD) [1–3], whether they are resettled in the developing world [4–8] or in Western countries [9–15]. Research with this population often focuses on pre-migration traumatic events with little regard to post-migration deprivation and structural needs in countries of resettlement [16]. However studies that do account for post-migration factors indicate that they are important in moderating pre-migration traumatic experiences. In a meta-analysis of 56 studies of refugees, asylum-seekers, and other displaced persons, Porter and Hassam [3] found that numerous structural post-migration conditions, such as housing accommodation and restricted economic opportunities, moderated mental health outcomes, regardless of resettlement location. Among a sample of Bosnian refugees in the Netherlands, Knipscheer and Kleber [17] found that the ability to perform adequate occupational skills for functioning in their post-migration society was a significant predictor of mental health status, and that respondents reported issues such as financial troubles and daily hassles and stressors as their worst mental health problems. In a study of Latin-American and Middle-Eastern refugees, also in the Netherlands, Hondius et al. [18] found that in addition to pre-migration experiences of violence and torture, PTSD symptoms were associated with ongoing psychosocial strains in post-migration life such as immigration status and duration of stay in host country. Nicholson [13] found that, among Southeast Asian refugees in the US, the level of daily stress, which encompassed difficulties with employment, housing, the loss of welfare entitlements, and

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crime victimization, was the strongest overall predictor of mental health, beyond pre-migration traumatic events.

In the US, the mental health of immigrant survivors of political violence is understudied. Though an increasing number of the over 12 million refugees and asylum-seekers worldwide are seeking refuge in Western countries [2], much of the mental health research with these populations is based on samples in countries other than the US, including Australia [19], the Netherlands [11, 17, 18, 20], and Croatia [21].

Moreover, studies that are specific to the US often focus narrowly on samples of legally designated “refugees” who are afforded certain rights, protections, and economic benefits by the government. These studies also often represent single groups of refugees from specific regions such as Southeast Asia [22, 23], the Middle East [24, 25], and Eastern Europe [26]. In reality, exposure to political violence is an experience that transcends legal categorization and afflicts an unknown number of immigrants. For example, over half of the immigrants that apply for political asylum in the US are undocumented at the time of their application [27]. Further, Eisenman et al. [9] found that over half of the low-income documented and undocumented Latino immigrants presenting at primary care clinics in the Los Angeles, California area had experienced some form of political violence. This ambiguity regarding immigration status is relevant, not only because it creates difficulties in accurately identifying prevalence of such experiences, but also because it indicates that a sizable number of survivors may face the hardships of living in the US as undocumented immigrants.

In summary, studies with immigrant survivors of political violence in the US are often limited to the experiences of those individuals who fall within the narrowly defined legal category of refugee and focus largely on samples representing single ethnic or regional origin groups. They also emphasize pre-migration stressors without contextualizing these experiences in the post-migration environment that these individuals face upon resettlement. Yet some existing research indicates that understanding the stressors present in countries of resettlement is paramount to promoting mental wellness among these individuals. In the US, survivors of political violence are often immigrants belonging to racial and ethnic minority groups who find themselves in a hostile post-migration environment where they encounter adversities associated with being an undocumented immigrant (e.g., financial and housing instability, inadequate access to health care and social services), discrimination based on their racial or ethnic minority status, as well as hardships specific to their experiences of political violence.

Theoretical Framework

Immigrants who have experienced political violence face extraordinary obstacles to mental health and well-being in

their resettlement efforts [3, 13, 17, 18]. In much of the existing research on the mental health of survivors of political violence, study participants are limited to individuals from the same region of origin, and the comparison group is often drawn from the non-traumatized population of that region of origin [3]. This research seeks to fill gaps in the mental health literature by examining risk factors for PTSD among a clinical sample of survivors of political violence, diverse in both region of origin and immigration status, who were clients at a multidisciplinary health clinic in New York City (NYC). The specific aims of this study were to (1) identify predictors of PTSD symptoms among demographic, torture-specific, and post-migration variables, and (2) to analyze the relative effect of pre-migration and post-migration factors, especially legal status, on PTSD outcomes among these individuals.

Methods

Participants

The data employed in this study were drawn from a convenience sample of 875 clinic clients from a larger client intake database of 1,360. This sample was used because, due to changing evaluation and intake procedures, the outcome measure of interest (Harvard trauma questionnaire scores) was only collected from these clients. Full demographic information can be found in Table 1.

Data Collection

Data were collected during an initial intake session, typically lasting 1½–2 h. All intake interviews were conducted by psychologists, psychiatrists, or supervised psychology interns who undergo a rigorous five-day training upon hire at the clinic, and are regularly supervised in their work. When necessary, interviews were conducted with the assistance of trained interpreters.

Intake sessions consisted of semi-structured interviews in which the administering clinician collected demographic information, including information about current legal status, employment, and income. The intake interviews also included an unstructured narrative in which clients described their experiences of torture, persecution and other traumas. The incidents were later coded in accordance with the Huridocs codebook [28], a classification system developed to facilitate systematic documentation of human rights abuses. The coding system encompasses over 70 specific acts or situations under the category of torture. Each client was also administered the PTSD symptom portion of the Harvard trauma questionnaire [23]. Data collection forms had already been completed by clinicians who conducted the

Table 1 Frequencies, means and standard deviations of variables

	Range	Mean or % "Yes"	SD
Dependent measure			
Harvard trauma questionnaire ($\alpha = 0.88$)	1–4	2.38	0.63
Met clinically significant cut-off of 2.5+	0 = No, 1 = Yes	42 %	–
Demographic characteristics			
Age	16–63 years	34.37	9.02
Female	0 = No, 1 = Yes	36 %	–
Region of origin			
Africa	0 = No, 1 = Yes	59 %	–
Asia	0 = No, 1 = Yes	31 %	–
Eastern Europe	0 = No, 1 = Yes	5 %	–
Other region	0 = No, 1 = Yes	5 %	–
Religion			
Muslim	0 = No, 1 = Yes	38 %	–
Christian	0 = No, 1 = Yes	31 %	–
Buddhist	0 = No, 1 = Yes	28 %	–
Other religion	0 = No, 1 = Yes	3 %	–
High school graduate	0 = Not a HS graduate, 1 = HS graduate or more	59 %	–
Married	0 = Not married, 1 = married	63 %	–
Dependents	0–14	1.72	2.08
Abuse characteristics			
Experiences (not mutually exclusive)			
Witnessing violence	0 = No, 1 = Yes	80 %	–
Violence against family	0 = No, 1 = Yes	91 %	–
Beating	0 = No, 1 = Yes	93 %	–
Rape/sexual assault	0 = No, 1 = Yes	41 %	–
Deprivation	0 = No, 1 = Yes	35 %	–
Number of times detained	1–30	1.76	1.82
Years since last abuse experience	0–45 years	6.84	6.58
Post-migration characteristics			
Months in the US	1–312 months	22.31	27.39
Legal immigration status	0 = No, 1 = Yes	13 %	–
Weekly income	\$0–\$1,200	27.44	100.83
English ability	0 = None/poor, 1 = fair/good/fluent	43 %	–

intake evaluation, thus inter-rater reliability for the data coded on these intake questionnaires was not available.

Measures

The measures used in this study were the Harvard trauma questionnaire (HTQ), demographic characteristics, abuse characteristics, and post-migration characteristics.

Harvard Trauma Questionnaire

The Harvard trauma questionnaire (HTQ) assesses 16 *DSM-III-R*-related posttraumatic stress disorder items on 1–4 Likert-type scales [23]. Research using the HTQ with refugees and asylum-seekers supports the validity of

PTSD classifications based on a cutoff score of 2.5 [29]. Moreover, previous work with a smaller sample of this clinic's clientele ($N = 325$) indicates scale reliability in the English as well as French and Tibetan-translated versions of the instrument [15]. In the present study, the Cronbach's alpha for the HTQ was 0.88. The mean HTQ score was 2.34; using a cut-off score of 2.5, over two-fifths (42 %) of the sample had clinically significant PTSD symptoms.

Demographic Characteristics

Demographic characteristics included in the analysis were: age, gender, region of origin, religion, marital status, number of dependents, and level of education.

Abuse Characteristics

Items describing abuse characteristics were collapsed into five dummy variables representing broad, non-mutually exclusive categories of pre-migration experience found to be associated with mental health outcomes [30, 31]: witnessing violence, violence against family, rape/sexual assault, beating, and deprivation (e.g., extended deprivation of food, water, sleep). Though all of the individuals in this study meet either the World Medical Association definition or the UN definition for torture, it is not necessarily the case that all of the experiences catalogued occurred as part of their torture experience. This is less often the case for rape/sexual assault, which nearly all clients experience as a part of their torture experience. However, for example, an individual who experienced torture by their home government may have also experienced a beating or witnessed violence in their country of origin in the context of street crime, as opposed to at the hands of government authorities. Time since last abuse experience (whether by a government authority or not) and number of times individuals were detained by government authorities were also analyzed.

Post-Migration Characteristics

Variables related to post-migration status were: legal immigration status (i.e., asylum, Green Card, visa, etc.), number of months in the US, English ability and weekly income.

Analysis

The first step in analysis was to explore bivariate relationships between the dependent measure, HTQ scores, and the sets of independent variables: demographics, abuse experiences, and post-migration variables using (1) independent samples *T* tests, with Levene's test for equality of variances, (2) analysis of variance analysis (ANOVA), or (3) Pearson correlations.

A hierarchical ordinary least squares (OLS) regression analysis was then employed to analyze the relative predictive power of the independent variables on HTQ scores. For this analysis, a regression analysis with two steps was run. The first analysis (Step I) was run with demographic and abuse-related variables. Step II of the hierarchical regression analysis contained post-migration variables, such as time in the US, immigration status, English skills, and income. These variables were presented in separate steps in order to observe changes in the overall predictive power when accounting for post-migration factors, as well as changes in predictor variables.

This study was approved by the Institutional Review Board of the New York University School of Medicine, which determined that the archival nature of this analysis precluded obtaining informed consent.

Results

Univariate Associations Between PTSD and Independent Variables

A summary of the means, standard deviations, and other descriptive statistics for the dependent and independent variables used in this study are presented in Table 1.

Table 2 presents the relationships between the independent variables and HTQ scores. The demographic differences found to be statistically significant were gender, education, region of origin, religion, and marital status. Women had higher HTQ scores ($t = -5.74, p < 0.001$), as did those with at least a high school diploma ($t = -4.24, p < 0.01$). Those who were presently married reported significantly lower HTQ scores than those who were not ($t = 2.61, p < 0.001$). In addition, there were statistically significant differences between region of origin and HTQ scores ($F [3, 762] = 17.65, p < 0.001$). A Scheffe post hoc test (not shown) revealed that Asians had statistically significantly lower HTQ scores than clients from Africa, Eastern Europe. A Scheffe post hoc test (not shown) revealed that Asians had statistically significantly lower HTQ scores than clients from Africa, Eastern Europe or "Other" regions.

Examining individuals' abuse experiences, the univariate analyses revealed that those who reported having been raped/sexually assaulted had significantly higher HTQ scores than those who did not ($t = -7.658, p < 0.001$), and there was a slight positive correlation between the number of times a respondent was detained and HTQ scores ($r = 0.09, p < 0.05$).

Of the post-migration variables included in this study, immigration status and English ability were associated with statistically significant differences in HTQ scores. Those who reported having legal immigration status had lower scores than those who did not ($t = 4.61, p < 0.001$). Those who reported fair or better English skills had significantly higher HTQ scores than those who had poorer English language skills ($t = -4.33, p < 0.001$).

Hierarchical Regression Model

Table 3 presents the hierarchical OLS regression model employed to predict PTSD symptomology, as denoted by higher HTQ scores. All steps of model were tested for multicollinearity using the variance inflation factor (VIF)

Table 2 Univariate analyses: unadjusted mean differences on dependent variable (HTQ scores)

	<i>n</i>	Mean	SD	<i>T</i>	<i>df</i>	<i>p</i>
Gender						
Female	143	2.57	0.58	−4.51	400	<0.001
Male	259	2.28	0.63			
High school graduate						
Less than a high school diploma	164	2.25	0.63	−3.70	400	<0.001
High school graduate and beyond	238	2.48	0.62			
Married						
Not currently married	149	2.49	0.63	2.70	400	0.007
Married	253	2.32	0.62			
Witnessing violence						
Did not witness violence	80	2.33	0.68	−0.87	400	0.385
Witnessed violence	322	2.40	0.62			
Violence against family						
No violence against family	36	2.60	0.55	2.16	400	0.032
Experienced violence against family	366	2.36	0.63			
Rape/sexual assault						
Did not experience rape/sex assault	236	2.21	0.58	−6.97	400	<0.000
Experienced rape/sexual assault	166	2.63	0.61			
Beating						
Did not experience beating	30	2.48	0.56	0.861	400	0.390
Experienced beating	372	2.38	0.64			
Deprivation						
Did not experience deprivation	263	2.39	0.64	0.362	400	0.718
Experienced deprivation	139	2.37	0.61			
Legal immigration status						
Does not have legal status	349	2.43	0.61	4.33	400	<0.001
Has legal status	53	2.04	0.65			
English ability						
No or poor English ability	231	2.29	0.63	−3.63	400	<0.001
Fair/good/fluent English ability	171	2.51	0.61			
		Sum of squares	Mean square	<i>F</i>	<i>df</i>	<i>p</i>
Region of origin (Africa, Asian, Eastern Europe, other)						
Between groups		13.06	4.35	11.87	3	<0.001
Within groups		146.02	0.37		398	
Total		159.09			401	
Religion (Christian, Muslim, Buddhist, other)						
Between groups		14.93	4.98	13.74	3	<0.001
Within groups		144.16	0.36		398	
Total		159.09			401	
	<i>n</i>	Mean	SD	Pearson's <i>r</i>		<i>p</i>
Age	402	34.37	9.02	−0.05		0.334
Number of dependents	402	1.72	2.08	−0.04		0.484
Number of times detained	402	1.76	1.82	0.09		0.067
Years since last abuse experience	402	6.84	6.58	−0.06		0.216
Weekly income	402	28.45	100.83	−0.03		0.596
Number of months in the US	402	22.31	27.39	0.01		0.780

Table 3 Unstandardized regression coefficients for HTQ scores (standardized Betas in parenthesis)

	Step I: Baseline <i>B</i>	Step II: Post-migration <i>B</i>
Demographic characteristics		
Female	0.18** (0.14)	0.17* (0.13)
Religion (Ref: Muslim)		
Buddhist	−0.32 (−0.23)	−0.28 (−0.20)
Christian	0.00 (0.00)	0.01 (0.00)
Other religion	−0.27 (−0.07)	−0.21 (−0.06)
Abuse characteristics		
Rape/sexual assault	0.28*** (0.22)	0.28*** (0.22)
Post-migration characteristics		
Legal immigration status	−	−0.35*** (−0.19)
English ability	−	0.16* (0.12)
Constant	2.45***	2.35***
Adjusted <i>R</i> ²	0.17	0.20

Variables included in all steps of the model that were not statistically significant were: age, marital status, number of dependents, HS education, region of origin, violence against family; witnessing torture, beating, and deprivation, number of times detained, and years since last abuse experience. Variables included in Steps II only that were not significant were months in the US and current weekly income

* *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001

and were found to be within acceptable ranges (VIF < 10; Tolerance < 0.1; Condition Index < 30). As shown in Step I, which does not control for post-migration characteristics, three variables were significant predictors of HTQ scores: religion, gender, and rape/sexual assault. Specifically, controlling for all other variables in the model, identifying as a Buddhist was associated with lower HTQ scores than identifying as Muslim (*p* < 0.05). Those who reported being raped/sexually assaulted had significantly higher scores than those who had not (*p* < 0.001). Finally, women had statistically significantly higher HTQ scores than their male counterparts (*p* < 0.01). Step I had an adjusted *R*-Square of 0.16; the independent variables in Step I explain 16 % of the variance in HTQ scores.

With the addition of the post-migration variables in Step II (see Table 2), the adjusted *R*-Square increases from 0.16 to 0.20; the independent variables in Step II explain 20 % of the variance in HTQ scores, which is a statistically significant increase (*F* change = 5.46, *p* < 0.001). Among

the post-migration variables in this step of the model, the two significant predictors of PTSD were immigration status and English language ability. While having legal immigration status was associated with having better PTSD outcomes (*p* < 0.001), being proficient or fluent in English was associated with worse outcomes (*p* < 0.05). Unlike the earlier model, being a Buddhist (when compared to Muslim) was not a significant predictor of scores on PTSD; however, other pre-migration variables remained significant when controlling for post-migration variables: being female (*p* < 0.05) and rape/sexual assault (*p* < 0.001). Immigration status was nearly as powerful a predictor of PTSD as rape/sexual assault.

Discussion

Investigators examined the associations between pre-migration and post-migration experiences and PTSD symptomology, as indicated by HTQ scores among a convenience sample of immigrant survivors of political violence from a diversity of regions. The major finding was that post-migration environment explained a significant amount of variance in HTQ scores, above and beyond pre-migration characteristics and abuse experiences. This is consistent with Porter and Haslam’s (2005) assessment that “psychopathology among refugees is not an inevitable posttraumatic consequence of acute wartime stress but reflects contextual factors that can be significantly remedied by generous support on the parts of governments and agencies” (p. 610).

Immigration status was the most significant post-migration variable in predicting PTSD symptomology, nearly as powerful a predictor of PTSD as rape/sexual assault. Stressors such as legal instability and the expensive and prolonged process of obtaining political asylum may have profound effects on immigrants who often require medical and psychiatric care related to pre-migration physical and emotional traumas.

English language ability was associated with increased HTQ scores. It is doubtful that the HTQ was the problem because other studies with immigrants seeking asylum supported the validity of this instrument [29], as well as its scale reliability [15]. While language proficiency often may act as a proxy for degree of acculturation, including greater familiarity with the Western cultural concepts of trauma and of distress measured in the instrument, it is important to note that another proxy for acculturation, length of time in the US, was not statistically associated with PTSD symptoms. In fact, the effect of English proficiency is heightened by the fact that this effect persists even after adjusting for time in the US. This may suggest that acculturation per se is not an immediately convincing explanation for the findings.

Porter and Haslam [3] found that refugees who are more educated and had higher pre-displacement socioeconomic status had worse mental health outcomes because these characteristics represented a greater loss of status. Unfulfilled expectations among immigrants have been indicated as an explanation for higher rates of certain psychiatric illnesses (e.g., depression) with drop in social status associated with migration. In the present study it is possible that unfulfilled expectations are associated with English fluency rather than to a general drop in socioeconomic status. For example, individuals in this research who either spoke English before arrival or who learned English upon arrival may have felt that they should have been better able to cope with migration than those with poor English fluency, only to experience their PTSD symptoms more keenly upon a lack of success in the post-migration environment.

Religion was a significant predictor of PTSD symptoms in Step I of the regression model. Those who identified as Buddhist, the majority of whom were from Tibet, had markedly better PTSD outcomes than their Muslim counterparts. This finding is consistent with studies of Tibetan refugee samples that indicate Tibetan Buddhists may be less prone to exhibit such symptomology than other survivors of torture, despite experiencing comparable traumatic experiences [5, 6, 15, 32]. Yet these differences disappeared when post-migration factors were introduced in Step II, suggesting that whatever protective effects of religion exist and operate to the benefit of individuals who identify as Buddhist (as compared to those who identify as Muslim), were diminished by conditions in the post-migration environment.

Results also indicated that, even when controlling for post-migration factors, pre-migration rape/sexual assault and gender remained powerful predictors of PTSD. In consideration of the potential confounding of gender results due to the unequal gender ratio in the sexual assault group, separate analyses were conducted of the effects of gender and sexual assault on HTQ scores (not shown). The initial regression models with rape/sexual assault as an independent variable but excluded gender. The addition of gender as an independent variable significantly increased the overall fit of the model (F change = 6.37, $p < 0.05$). Separate analyses were conducted with a subsample consisting of only those who had not been sexually assaulted ($n = 550$) with findings that gender predicted PTSD ($B = 0.21$, $p < 0.05$, $\beta = 0.15$).

Of five distinct abuse experiences, the only significant predictor of PTSD was rape/sexual assault. This supports previous research concerning both the high prevalence and devastating effects of rape/sexual assault on both male and female survivors of political violence [33–35]. Being female was associated with worse PTSD outcomes, even when controlling for rape/sexual assault and post-migration conditions. This is consistent with findings in the mental

health literature that women exhibit more severe PTSD symptomology than men among refugee samples [36–38]. Further research is needed to better conceptualize the association between gender and the deleterious mental health effects of sexual assault in post-migration settings.

In contrast to previous research, this study offered a direct comparison of diverse regional groups with each other. However region of origin was not significantly associated to PTSD outcomes in any of the steps of the multivariate model. These findings challenge the general assertion that level or type of psychological complaints among survivors of political violence may vary by the individual's region of origin [5, 6, 15, 32]. Further analysis of each subgroup is planned to better understand the nuances of their PTSD symptomology and to explore within-group socio-cultural factors as intervening variables.

Limitations

One limitation of this study was that data were drawn from a convenience sample of clinic patients and cannot be used to statistically generalize to any larger population. However, due to their immigration status and the nature of their experiences, individuals who have been exposed to political violence often represent a hidden or hard-to-reach population. As such, it would be difficult to identify an accurate sampling frame from which to draw a representative sample. A second limitation is the possibility of selection bias; this sample of individuals seeking treatment may be more distressed and symptomatic than torture survivors in the community who have not sought treatment. Thus, some degree of overestimation is likely in terms of the severity of psychological symptoms observed in this study. Moreover, a large proportion of clients had been referred to the clinic by their lawyers and was involved in active legal cases. As such, the importance of immigration status may be especially prominent among these individuals. Moreover, it should be pointed out that no causal pathway can be established with these results. The HTQ scores of participants with post-migration factors such as English proficiency may be reflective of the exacerbation of pre-existing PTSD symptoms caused by political violence, or the higher HTQ scores may be reflective de novo anxiety symptoms, unrelated to symptoms of PTSD, which developed because of post-migration hardships.

Despite the limitations, this study draws upon the largest and most diverse sample of survivors of political violence resettled in the US. The findings from these analyses can serve as a foundation for larger and more structured studies of mental health that look critically at post-migration structural barriers to mental health in this population and can inform policies that may prevent further deterioration of their mental well being.

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