

“One Scar Too Many:” The Associations Between Traumatic Events and Psychological Distress Among Undocumented Mexican Immigrants

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Undocumented immigration often presents with multiple stressors and contextual challenges, which may diminish mental health. This study is the first to provide population-based estimates for the prevalence of traumatic events and its association to clinically significant psychological distress among undocumented Mexican immigrants in the United States. This cross-sectional study used respondent-driven sampling to obtain and analyze data from clinical interviews with 248 undocumented Mexican immigrants residing in high-risk neighborhoods near the California-Mexico border. Overall, 82.7% of participants reported a history of traumatic events, with 47.0% of these meeting the criteria for clinically significant psychological distress. After controlling for relevant covariates, having experienced material deprivation, odds ratio (OR) = 2.26, 95% CI [1.18, 4.31], p = .013, and bodily injury, OR = 2.96, 95% CI [1.50, 5.83], p = .002, and not having a history of deportation, OR = 0.36, 95% CI [0.17, 0.79], p = .011, were associated with clinically significant psychological distress. These results support the need to revisit health and immigration policies and to devise solutions grounded in empirical evidence aimed at preventing the negative effects of trauma and psychological distress in this population.

For over two decades, the United States has been a primary destination for international migrants, with an average annual immigration growth of 2.8% (World Health Organization, 2010). Approximately 13% of the U.S. population is foreign-born (U.S. Census Bureau, 2015), with a considerable proportion (approximately 27%) of these immigrants being undocumented (Pew Research Center, 2013). In 2011, there were approximately 11 million undocumented immigrants the United States, with the majority being of Mexican origin (Pew Research Center, 2013). Also, there are approximately 4.5 million U.S.-born children whose parents are undocumented, and

at least 9 million Latinxs living in “mixed-status” families (Taylor, Lopez, Passel, & Motel, 2011). As undocumented immigrants establish their families in the United States, they are more likely to settle and less likely to return to their countries of origin (Passel, Cohn, Krogstad, & Gonzalez-Barrera, 2014). The increase in global mobility, advances in communication infrastructure, demand-pull factors in the United States (e.g., family unification, economic opportunity), and supply-push factors in sending countries (e.g., poverty, violence) make it likely that undocumented immigrants will continue settling in the United States.

According to *Healthy People 2020*, mental health is 1 of 12 leading health indicators that are essential to a person’s well-being (U.S. Department of Health and Human Services, 2010). On average, U.S.-born Latinxs are known to have a lower lifetime prevalence of mental health illness when compared with non-Latinx whites, but not when compared with their foreign-born counterparts (Alegria et al., 2008). Unfortunately, despite this seeming mental health advantage of the foreign-born, there is limited information to show how variations in the contextual experiences of certain marginalized Latinx immigrants (e.g., the undocumented) could make these immigrants’ mental health more similar to that of U.S.-born

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Latinxs. Undocumented immigration to the United States often presents with multiple stressors and contextual challenges, which may increase risk for psychological distress and diminished mental health (Garcini et al., 2016). For instance, exposure to physical, verbal, psychological and/or sexual violence is widespread among undocumented immigrants (Garcini et al., 2016). Examples of common traumatic events experienced by these immigrants include human or drug trafficking, extortion, dangerous border crossing, witnessing the death of others while crossing, abandonment by crossing guides or *coyotes*, unsafe working conditions, separation from family and friends, limited access to healthcare, domestic violence, and deportation (Garcini et al., 2016; Infante, Idrovo, Sánchez-Domínguez, Vinhas, & González-Vázquez, 2012). These traumatic events can have a serious and lasting impact not only on the mental health of these immigrants, but also on that of their U.S.-born families (Delva et al., 2013). For instance, trauma can lead to disruption in family relations, interference in building supportive social networks, conflict and diminished performance at work or school, engagement in high-risk behavior (e.g., substance use), and ill health (Delva et al., 2013; Porche, Fortuna, Lin, & Alegria, 2011). Also, given their lack of access to health and human services programs (e.g., legal protection), undocumented immigrants are at a high risk of psychological distress associated with trauma (U.S. Department of Health and Human Services, 2012).

Research to explore determinants of mental health among undocumented immigrants has increased considerably within the past decade, with psychological distress being widespread in this population (Garcini et al., 2016). Unfortunately, despite the identification of distress as common among undocumented immigrants, information on population-based estimates for the prevalence of psychological distress associated to trauma in this subgroup is limited. Psychological distress in response to trauma refers to “the unique discomforting, emotional state experienced by an individual in response to a specific traumatic [event] that results in harm, either temporary or permanent, to the person” (Ridner, 2004, p. 539). Given that undocumented immigrants are a hidden population—that is, “public acknowledgement of membership to this subgroup is potentially threatening” (Heckathorn, 1997, p. 174)—most studies have relied on convenience sampling to inform on the mental health needs of undocumented immigrants. Unfortunately, the use of convenience sampling increases risk for selection biases and may lead to inaccurate estimates. Also, the use of self-report, imprecise measurement, and the limited analysis of mental health outcomes by immigration legal status all make it challenging to identify prevalence estimates of traumatic events and psychological distress in this immigrant subgroup (Garcini et al., 2016). Thus, research that incorporates the use of innovative sampling methodologies to the epidemiological study of trauma and psychological distress among undocumented immigrants is needed to overcome shortcomings in previous studies and to obtain more reliable estimates needed to inform advocacy, intervention, and policy efforts.

Consistent with a need to increase information on the mental health needs of undocumented immigrants, this study aimed to (1) assess the prevalence of traumatic events and their association to relevant sociodemographic and immigration characteristics, including gender differences, among undocumented Mexican immigrants residing in high-risk neighborhoods; (2) identify the prevalence of psychological distress associated with traumatic events in this immigrant population; and (3) identify the association of psychological distress and traumatic events after controlling for relevant sociodemographic and immigration characteristics.

Method

Participants and Procedure

This cross-sectional study used respondent-driven sampling (RDS) as its sampling and data analysis method. Currently the most effective method used to study hidden populations, RDS is a methodology based on a mathematical model of the social networks that connect participants in a study (Heckathorn, 1997). It relies on a structured referral system that uses successive waves of participant recruitment to achieve diversity so that initial samples no longer mirror later samples. To reduce biased estimates, RDS modifies commonly used chain-referral methods in three ways. First, to increase the breadth of the social network captured by the sample, recruitment is limited by the use of coupons so participants are allowed a fixed number of referrals (maximum of three); second, in using referral coupons, participants do not personally identify referrals to the researcher so that anonymity is maintained; and third, to make results representative of the target population (and not just of respondents with large social networks), a systematic weighting scheme is built into the RDS model. Specifically, weights are based on a respondent’s social network size; that is, on their probability of being captured by this survey technique as well as other features of their social network, which can affect the referral process. In other words, the probability of selection is based on each participant’s probability proportional to the size of his or her social network (degree). In this way, each participant is weighted by the inverse of its probability of selection, so that units with a small chance of being selected (those with smaller social networks) have more weight, whereas those with larger social networks are assigned less weight in the analyses (Tyldum & Johnston, 2014). Thus, although RDS begins with a convenience sample of undocumented immigrants, a structured process is used in recruitment to obtain unbiased estimates of the undocumented population in the study location. Previously, RDS has been used to obtain prevalence estimates to inform the health needs of migrant populations, including undocumented immigrants in the United States (Montealegre, Risser, Selwyn, Sabin, & McCurdy, 2012; Tyldum & Johnston, 2014; Zhang, 2012).

Inclusion criteria for this study were being 18 years of age or older, of Mexican origin, and undocumented. Also,

participants had to be Spanish-speaking and could not be exhibiting acute psychotic symptoms (i.e., hallucinations, delusions, disorganized speech or thought); the latter was assessed using clinical judgment. A question modeled from the San Diego Labor Trafficking Survey Questionnaire (Zhang, 2012) was used to determine the undocumented status of participants. The question asked, "At present, are you living here without a visa or legal documentation to live in the U.S.?" Each respondent was compensated \$30 for participation in the assessment and received \$10 (for a maximum total of \$30) for each recruited peer who met eligibility criteria and participated in the study. Verbal consent was obtained prior to participation, and the study received approval by the San Diego State University/University of California San Diego Institutional Review Board.

Data were collected from November 2014 to January 2015. Recruitment for this study began with three previously selected undocumented Mexican immigrants or *seeds* that were carefully identified during formative research. No additional seeds were used in this study. Given that characteristics of the seeds should be independent of those of the final sample (Heckathorn, 2002), seeds were selected to represent the diversity of the community, including gender, age, place of residence, and relevant immigration characteristics. Each seed was provided with three referral coupons that could be used to recruit other undocumented immigrants for participation. The next waves of recruits were provided with another set of three referral coupons with which to recruit additional undocumented immigrants for participation. Each referral coupon was coded to match the recruiter to the respondent and collected from each respondent by the interviewer in order to link each respondent to seeds and track referral chains. Sampling continued until the desired sample size was reached and equilibrium achieved, with a maximum chain length of 11 waves. Equilibrium was verified empirically through the use of RDS Analyst (Handcock, Fellows, & Gile, 2014), which showed that the final subjects recruited no longer had identical characteristics to the initial seeds. Figure 1 illustrates the network diagram of the recruitment tree.

To collect the data, face-to-face semistructured clinical interviews were conducted by psychology trainees who were working under the direct supervision of mental health clinicians. Interview duration ranged from 1 to 3 hours depending on the extent of psychological distress reported. To minimize error and increase efficiency, data were collected using a computer-assisted personal interviewing system (CAPI; Questionnaire Development System v. 3.0 [Nova Research Company, Silver Spring, MD, USA]). All interviews were conducted in Spanish by native Spanish speakers at a convenient and private location identified during formative research. Participants included 257 undocumented immigrants; however, six participants were not of Mexican origin and were thus excluded from this study. Additionally, three participants had missing data on the outcome of interest and were also excluded. Thus, this study was based on data from 248 undocumented Mexican immigrants residing

in a medium-sized city, relatively near the California-Mexico border. The target location for this study was chosen based on results from extensive formative research. To provide the most conservative estimates, analyses in this study were conducted using the 15% population estimate in the target location as reference ($N = 22,000$).

Measures

Traumatic events. An adapted version of the Traumatic Events Inventory of the Harvard Trauma Questionnaire (HTQ) was used to evaluate traumatic events. The HTQ is designed to assess traumatic experiences among at-risk immigrants (Mollica, McDonald, Massagli, & Silove, 2004). This inventory assessed participants' experience and/or witnessing of common forms of human rights violations that may lead to psychological distress (Mollica et al., 2004). The adapted version consisted of 25 items assessing traumatic events along seven main domains. Based on results from formative research and pilot testing, two additional items not included in the original HTQ inventory, and deemed as relevant to traumatic events among undocumented Mexican immigrants, were added. These were "have you ever been deported?" and "have you ever experienced any form of domestic violence?" Responses to all items in the inventory were dichotomous (*yes* or *no*). In this study, Cronbach's alpha for the HTQ was .83.

Psychological distress. The Spanish-language version of the 53-item Brief Symptom Inventory (BSI; Derogatis, 1993) was used to assess psychological distress. The BSI was pretested and adapted with members of the target population during a pilot study (Peña, Garcini, Gutierrez, Ulibarri, & Klonoff, 2016). The BSI was used to assess psychological distress using symptom patterns along nine dimensions and a global severity index (GSI) to provide an overall assessment of distress. Each item was rated on a 5-point scale to denote distress from 0 = *not at all* to 4 = *extremely*. Using gender-specific community nonpatient norms, raw scores for each scale and the GSI were converted to standardized t scores ($M = 50$, $SD = 10$). Clinically significant distress or a case for positive diagnosis was denoted by a GSI t score ≥ 63 or any two subscale dimension scores with a t score ≥ 63 . The BSI is widely used, has well-established psychometric properties, and has been previously used with Mexican immigrants (Cervantes, Fisher, Padilla, & Napper, 2015). In this study, Cronbach's alpha for the BSI was .95.

Demographics and immigration history. Demographic and immigration questions were modeled from the 2009 San Diego Prevention Research Center (SDPRC) and the San Diego Labor Trafficking Survey Questionnaire (Zhang, 2012). Demographic questions included gender, age, marital status, educational attainment, employment, monthly household income, and English proficiency. Immigration history included age of arrival to the United States, length of time in the United States,

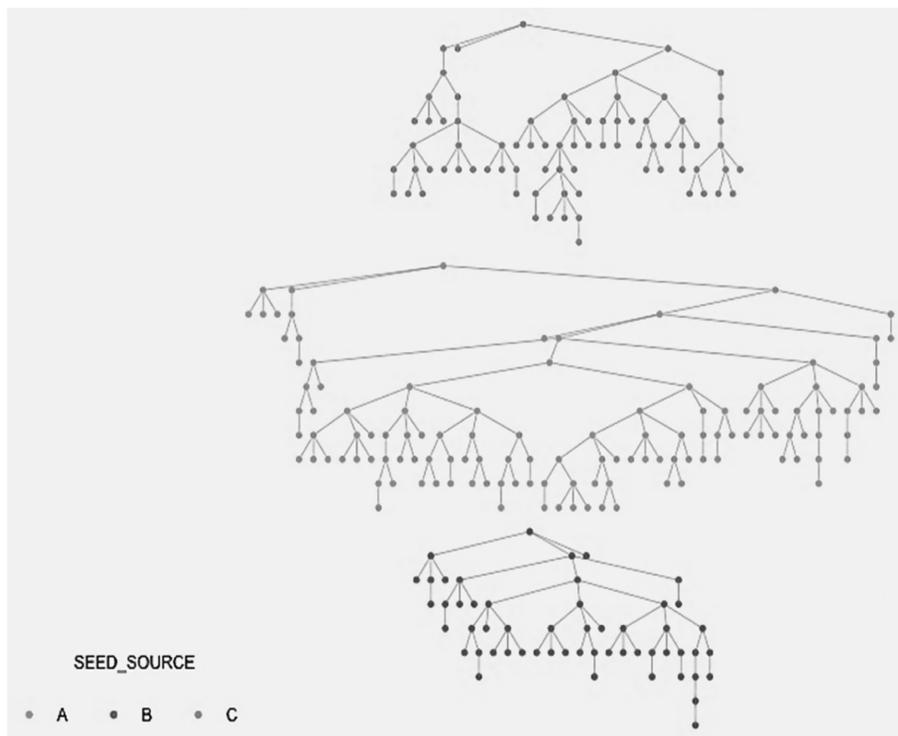


Figure 1. Recruitment Tree.

and whether or not the participant lived in a mixed-status family (i.e., a family in which at least one member is undocumented).

RDS questions. To identify participants' networks, for mapping recruitment and to calculate RDS weights, six questions were asked and recommended prompting techniques to increase the accuracy of the information provided were used (Tyldum & Johnston, 2014; Zhang, 2012). These questions were modeled on the San Diego Labor Trafficking Survey Questionnaire (Zhang, 2012), and adapted from results of pilot testing with members of the target population. The questions assessed (1) the estimated size of a respondent's personal network that is undocumented, residing within the participant's community, well-known to the participant, and has had contact with the participant within the last 30 days (two questions); (2) the respondent's relationship to the referral source (three questions); and (3) the length of time the respondent has known the referral source (one question).

All measures used in this study were adapted for content and language based on results from formative research and pilot testing with recently deported undocumented Mexican immigrants (Peña et al., 2016). Established methodology was used in the adaptation of all measures (Beaton, Bombardier, Guillemin, & Ferraz, 2002).

Data Analysis

To estimate the sample size needed, a priori power analysis was conducted using OpenEpi, Version 3.01 (Dean, Sullivan, & Soe,

2013). Based on the historical proportion of mental health disorders among Mexican-origin foreign-born immigrants (Alegria et al., 2008) and to detect prevalence at 14% within a 95% confidence interval at 7% precision and with a design effect of 2, as recommended for the use of RDS (Salganik, 2008), a minimum sample size of 190 participants was needed, and was exceeded ($N = 254$). For all analyses, inferential statistics accounted for design effects and sample weights to produce weighted population estimates. Weights were calculated based on the percentage of undocumented immigrants expected to reside in the target location. To address the first two aims of this study, descriptive statistics were used and weighted frequencies along with 95% confidence intervals were calculated. Chi-square statistics were used for bivariate analysis, $p \leq .05$. Standardized residuals were used in post-hoc comparisons for variables with more than two categories (Siegel & Castellan, 1988). To address the study's third aim, multivariate logistic regression was used to assess the association of traumatic events with psychological distress after controlling for relevant covariates. Only sociodemographic and immigration characteristics with $p \leq .05$ in bivariate analyses were included in the multivariate analyses. Also, regardless of significance and because of their importance in the acculturation literature, age and time spent living in the United States were included in the multivariate model, and were used as continuous variables.

RDS assumptions and weights. For the testing of RDS assumptions, generation of RDS weights, and analysis of

population estimates and 95% confidence intervals, RDS Analyst, including the use of the successive sampling (SS) estimator was used (Gile, 2011; Handcock, Fellows, & Gile, 2014). A diagnostic testing for RDS assumptions showed that the sample reached equilibrium at the 11th wave of recruitment, showed little recruitment homophily (e.g. gender recruitment homophily = 1.03, $\chi^2(1, N = 248) = 0.365, p = .546$); and met basic RDS assumptions. This suggests that the characteristics of the recruited, weighted sample approximated the characteristics of the larger networks of undocumented Mexican immigrants in the target area (mid-size population estimate, $N = 22,000$; San Diego Association of Governments, 2016).

Results

Participants

The average age of participants was 38 years ($SD = 11.2$). The majority of the sample was female, married, had low educational attainment, and lived on a monthly household income of less than \$2,000 USD. Also, the majority of participants worked in the household, in cleaning and maintenance occupations, or in construction-related jobs. Most spoke no or little English and were originally from Central or South Mexico, specifically states where poverty and violence are rampant. The number of years spent living in the United States ranged from less than one year to 54 years, with the majority of participants having lived in the United States for more than 10 years ($M = 16, SD = 7.9$). Most participants immigrated to the United States between the ages of 11 and 30 years, and most are members of mixed-status families (see Table 1).

Trauma and Its Association to Sociodemographic and Immigration Characteristics

Overall, the majority of participants reported a history of traumatic events (82.7%; $M = 4$ traumatic events, $SD = 4.0$). About one-third of participants reported a history of at least six or more types of traumatic events (range = 6 to 19). No significant differences in history of traumatic events (*yes* or *no*) were observed across demographic or immigration characteristics. Table 2 provides a summary of prevalent types of traumatic events experienced by undocumented immigrants and related gender differences. Specifically, a greater proportion of men reported a history of material deprivation, warlike conditions, confinement/extortion/robbery, witnessing violence against others, and deportation when compared with women. In contrast, women were more likely than men to experience domestic violence and rape.

Prevalence of Clinically Significant Psychological Distress by Type of Traumatic Event

As seen in Table 2, there was a high prevalence of clinically significant psychological distress among participants with a history of traumatic events (47.0%). The highest prevalence

of clinically significant psychological distress was observed among those with a history of domestic violence (59.0%), bodily injury (58.9%), witnessing violence to others (55.5%), material deprivation (54.9%), and injury to loved ones (52.9%). No significant gender differences in clinically significant psychological distress among those with a history of traumatic events were found.

Associations Between Traumatic Events and Psychological Distress

After controlling for gender, age, marital status, work type, and years in the United States, the full model to assess for the association of traumatic events and psychological distress was statistically significant, $\chi^2(12, N = 248) = 51.38, p < .001$. The model fit using Cox and Snell R^2 was .19, and was .25 when using Nagelkerke R^2 . The model correctly classified 68.3% of cases. Pertaining to traumatic events, the strongest predictor of clinically significant psychological distress was having a history of bodily injury, odds ratio (OR) = 2.97, 95% CI [1.52, 5.82], $p = .002$, followed by history of material deprivation, $OR = 2.28$; 95% CI [1.20, 4.34], $p = .012$. Participants without a history of deportation were 2.63 times more likely to meet criteria for clinically significant psychological distress when compared with those with a history, $p = .013$. Post-hoc analyses to identify specific traumatic events within the aforementioned categories that were associated with clinically significant psychological distress showed that, after controlling for relevant covariates, ill health without access to proper care, $OR = 2.63$, 95% CI [1.21, 5.70], $p = .014$; sexual humiliation, $OR = 2.63$, 95% CI [1.32, 5.26], $p = .006$; and not having a history of deportation, $OR = 2.38$, 95% CI [1.55, 5.26], $p = .035$, were associated with clinically significant psychological distress (see Table 3).

Discussion

The first aim of our study was to assess the prevalence of traumatic events and their association to relevant sociodemographic and immigration characteristics among undocumented Mexican immigrants living in a high-risk area near the California-Mexico border. Our results showed that lifetime prevalence of traumatic events in this population was very high, with material deprivation, confinement/extortion, bodily injury, and witnessing injury to loved ones being the most prevalent traumatic events. This is consistent with previous studies of undocumented immigrants (Garcini et al., 2016), as well as research supporting socioeconomically disadvantaged populations to be at greater risk of experiencing traumatic events (Hatch & Dohrenwend, 2007). Important to emphasize is that undocumented Mexican immigrants are likely to live in marginalized and low-income communities prior and after immigration to the United States, which poses a greater risk for experiencing traumatic events.

Another relevant finding in our study was that, although no significant differences were found in having a lifetime history

Table 1
Demographic and Immigration Characteristics by History of Traumatic Events

Variable	Sample		Population		Lifetime History of Traumatic Events	
	<i>n</i>	%	%	95% CI	Sample (<i>n</i> = 205) %	Population (<i>N</i> = 18,040) %
Gender						
Women	172	69.4	69.4	[63.2, 75.5]	79.7	78.9
Men	76	30.6	30.6	[24.5, 36.8]	89.5	89.1
Age (years)						
18–25	35	14.1	14.1	[8.9, 19.3]	88.6	89.1
26–35	61	24.6	25.5	[19.3, 31.8]	73.8	75.5
36–45	103	41.5	40.2	[31.9, 48.2]	83.5	81.1
≥ 46	49	19.8	20.3	[14.6, 26.0]	87.8	87.5
Education						
None	14	5.6	5.7	[2.5, 8.9]	85.7	83.8
Elementary/MS	147	59.3	57.7	[50.1, 65.1]	81.6	81.4
HS (no graduation)	31	12.5	12.9	[8.3, 17.5]	87.1	86.6
≥ HS graduate	56	22.6	23.8	[17.7, 29.8]	82.1	81.0
Employment						
Not working/at home	121	48.8	48.1	[41.1, 54.9]	81.0	80.9
Cleaning/maintenance	55	22.2	22.1	[16.0, 28.2]	81.8	81.5
Construction	29	11.7	11.4	[7.4, 15.4]	86.2	85.0
Other	43	17.3	18.4	[12.7, 21.0]	86.1	84.2
Monthly income						
≤ \$500	19	7.7	8.0	[4.2, 11.7]	79.0	82.4
\$501–\$1,000	33	13.3	13.7	[9.5, 18.1]	87.9	86.2
\$1,001–\$2,000	141	56.9	55.8	[48.7, 62.9]	82.3	81.2
\$2,001–\$3,000	44	17.7	18.7	[12.8, 24.4]	84.1	84.2
≥ \$3,000	11	4.4	3.9	[1.3, 6.4]	72.7	68.4
Marital status						
Married	169	68.1	68.0	[61.1, 74.8]	81.1	80.4
Single	79	31.9	32.0	[25.2, 38.9]	86.1	85.6
Time in United States						
≤ 10 years	55	22.4	21.8	[16.1, 27.4]	81.8	83.6
11–20 years	125	50.8	50.8	[44.7, 57.0]	79.2	77.5
> 20 years	66	26.8	27.5	[20.5, 34.3]	90.9	90.7
Mixed-status family						
Yes	180	72.6	72.2	[64.5, 77.9]	82.8	82.2
No	68	27.4	28.8	[22.1, 35.5]	82.3	81.8

Note. MS = middle school; HS = high school.

of traumatic events across sociodemographic and immigration characteristics, significant gender differences were found in the prevalence of the specific types of traumatic events experienced. For instance, when compared with women, a greater number of men had experienced material deprivation, exposure to warlike conditions, confinement and extortion, deportation, and witnessing violence to others. In contrast, more women than men reported experiencing rape and domestic violence.

This is consistent with previous research, which suggests variations in the types of traumatic events experienced by men and women may be related to gender differences in social roles (Hatch & Dohrenwend, 2007). This could be particularly relevant for Mexican-origin immigrants who may be likely to endorse traditional gender roles, which are often distinguished in spatial terms so that, consistent with his role as provider, the street (*la calle*) is perceived as a man's space, whereas the

Table 2
Prevalence of Traumatic Events and Clinically Significant Psychological Distress

Traumatic Event	Estimated % Population (N = 22,000)			Estimated % Population With Trauma and Clinically Significant Distress (N = 8,483)		
	Total	Men	Women	Total	Men	Women
Material deprivation	48.0	59.1*	43.1	54.9	56.2	54.0
Lack of shelter	23.8	25.6	21.4	63.2	59.9	64.9
Lack of food/water	28.2	40.3*	22.8	56.0	54.9	56.9
Ill health without medical care	23.6	16.7	26.6	62.4	65.4	61.5
Destruction of property	14.3	20.9	11.3	47.1	50.9	43.9
Warlike conditions	37.8	53.2***	30.9	45.9	57.2	37.2
Exposed to combat-like events	22.1	33.7**	16.9	50.5	64.6	37.9
Forced evacuation in danger	16.3	18.9	15.1	47.1	69.8*	34.6
Bodily injury	43.4	43.6	43.3	58.9	56.6	59.7
Beating	16.7	16.6	16.7	69.4	74.6	67.1
Rape	8.3	<1.0	11.6*	65.6	100.0 ^a	64.6
Sexual humiliation	35.2	38.5	33.8	62.0	61.8	62.0
Torture	13.2	8.8	15.2	58.7	79.2	53.5
Confinement/extortion/robbery	47.7	67.2***	39.1	48.7	58.4	45.1
Imprisonment ^a	24.2	51.6***	12.4	42.6	48.3	31.9
Forced to hide	15.9	29.7***	9.7	48.4	55.4	39.0
Kidnapped	<1.0	1.6	<1.0	34.7	0.0	34.7
Forced separation from family	16.3	16.6	16.2	59.4	78.9	50.6
Enforced isolation due to danger	10.5	13.1	9.4	60.4	66.4	56.7
Present during house search	14.3	11.4	15.6	57.5	56.1	57.9
Extortion/robbery	17.3	28.5**	12.3	47.1	51.3	42.8
Injury to loved ones	42.1	42.3	42.0	52.9	65.5	47.3
Murder/death of loved one to crime	20.3	29.4*	16.3	60.1	70.0	52.3
Disappearance/kidnap of loved one	17.6	19.2	16.9	44.7	59.6	37.1
Physical injury to family due to violence	22.3	24.2	21.4	54.9	65.9	49.4
Witnessed violence to others	12.3	21.7*	8.6	55.5	65.8	44.0
Witness a killing/murder	8.0	17.2**	3.9	51.4	56.8	40.9
Witness rape/sexual abuse	5.0	4.5	5.2	57.8	100.0 ^a	41.9
Domestic violence	18.6	5.1	24.5***	59.0	43.5	33.5
Deportation	21.0	38.3***	13.3	39.0	65.1	58.4

Note. ^aThis includes imprisonment during a deportation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

home (*el hogar*) remains a woman's place, consistent with her role as caretaker (Knap, Muller, & Quiroz, 2015). Although not supported by the results of our study, it is possible that endorsement of the aforementioned gender roles may expose men and women to different settings so that men could be at greater risk for "street-like" traumatic events (e.g., combat-like violence), whereas women may be more likely to experience traumatic events within a home environment (e.g., domestic violence). Future studies are needed to explore the role of gender roles on exposure to traumatic events in this population.

The second aim of our study was to identify the prevalence of psychological distress associated with traumatic events in this immigrant population. Our results demonstrated clinically

significant distress to be prevalent among undocumented Mexican immigrants with a lifetime history of traumatic events, which is consistent with previous research (Garcini et al., 2016). Also, although no significant gender differences were observed in the prevalence of clinically significant distress among those with a lifetime history of traumatic events, our results showed a high prevalence of clinically significant distress among those experiencing traumatic events more frequently occurring among women (e.g., domestic violence, rape). This is of concern, given that the experiences of undocumented women are often exacerbated by their specific position as undocumented immigrants, such as avoidance to seek legal protection due to fear of deportation or separation from their children, lack

Table 3
 Associations Between Traumatic Events and Clinically Significant Psychological Distress

Variable	Unadjusted			Adjusted ^a		
	OR	95% CI	p	OR	95% CI	p
Gender						
Men (1)	1.92	[1.11, 3.32]	.019	2.97	[1.46, 6.12]	.003
Age	0.99	[0.97, 1.01]	.435	0.99	[0.96, 1.02]	.619
Marital status						
Married (1)	0.54	[0.31, 0.92]	.024	0.63	[0.34, 1.16]	.136
Time living in the United States (years)	1.01	[0.98, 1.04]	.562	1.01	[0.97, 1.05]	.795
Material deprivation						
Yes (1)	3.29	[1.94, 5.59]	<.001	2.28	[1.20, 4.34]	.012
War-like conditions						
Yes (1)	1.33	[0.80, 2.23]	.276	0.61	[0.32, 1.19]	.147
Bodily injury						
Yes (1)	3.64	[2.14, 6.21]	<.001	2.97	[1.52, 5.82]	.002
Confinement/extortion/robbery						
Yes (1)	1.77	[1.04, 2.96]	.280	0.95	[0.49, 1.83]	.875
Injury to loved ones						
Yes (1)	2.19	[1.31, 3.67]	.003	1.69	[0.90, 3.19]	.104
Witness violence to others						
Yes (1)	1.84	[0.86, 3.92]	.116	0.94	[0.39, 2.27]	.891
Domestic violence						
Yes (1)	2.46	[1.28, 4.70]	.007	1.48	[0.65, 3.35]	.349
Deportation						
Yes (1)	0.81	[0.43, 1.51]	.517	0.38	[0.18, 0.82]	.013

Note. OR = odds ratio.

^aAdjusted for gender, age, marital status, and time living in the United States.

of information, limited English proficiency, previous unsuccessful efforts with authorities in the country of origin, and cultural variables that prevent women from reporting violence (Menjívar & Salcido, 2002). Government and nongovernmental programs are available to provide assistance to undocumented women who are victims of violence; however, the aforementioned barriers often prevent these women from seeking needed help (Menjívar & Salcido, 2002). Future research is needed to inform how the experiences of violence among undocumented women may differ from those of their documented counterparts, as well as how to overcome barriers that limit the use of existing services. Most importantly, this information is necessary to support advocacy efforts aimed at preserving existing programs and legal protections for undocumented immigrants and their families that experience violence.

The third aim of our study was to identify the association of psychological distress and traumatic events after controlling for relevant sociodemographic and immigration characteristics. Consistent with theories supporting the need to fulfill basic needs (i.e., safety, food, water, shelter,) as essential for emotional well-being (Maslow, 1943), our results showed that after controlling for relevant covariates, having a history of bodily injury and material deprivation were associated with clinically

significant distress. Also, a particularly surprising finding in our study was that not having a history of deportation was associated with clinically significant distress. Although the opposite effect was expected, this finding seems consistent with behavioral principles and the effects of *flooding*, in that confronting feared stimuli often leads to subsequent diminished emotional responsiveness to the aversive situation (Zoellner, Abramowitz, Moore, & Slagle, 2009). A dreadful stressor among undocumented immigrants is fear of deportation. From a behavioral perspective, it is possible that once an undocumented immigrant is deported and finds a way to successfully return to the United States, the distress associated with fear of deportation may subside given that the immigrant has learned that he or she can face and survive deportation if it reoccurs. Research on the effects of deportation on the well-being of undocumented immigrants is limited, and additional studies are needed.

Finally, it is important to note that in the multivariate analyses, significant gender differences in meeting criteria for clinically significant distress were found, with men reporting much greater distress compared with women. Although no gender differences in clinically significant distress were found among those with a history of traumatic events, the aforementioned

finding suggests that high levels of distress are prevalent among undocumented men regardless of their trauma history. As previously mentioned, in having to meet their role as family providers, undocumented Mexican men may be more likely to spend greater time outside the home environment, venture into high-risk settings (e.g., hazardous work conditions), and experience worry from having to meet the financial needs of family both in Mexico and the United States (Knap, Muller, & Quiroz, 2015). In turn, it is likely that the aforementioned stressors, along with handling strenuous work schedules and living in constant fear of deportation, may take a toll on the emotional well-being of undocumented Mexican men. Additional studies to expand our understanding of distress among undocumented Mexican men, including risk and protective factors, are essential in order to develop effective interventions for those most at risk.

In addition to the aforementioned recommendations for future research, additional studies should aim to further identify specific symptoms of psychological distress and relevant gender differences associated with traumatic events in this at-risk population as to inform assessments, interventions, and the provision of services. Also, studies are needed to identify specific stages of migration, places, and timing of traumatic events associated with psychological distress to inform binational collaboration in the development of policies that increase access to resources.

Our study makes a timely and significant contribution to inform the mental health of this hard-to-find population. To our knowledge, this is the first study to provide population-based prevalence estimates of traumatic events and associated psychological distress among undocumented Mexican immigrants residing in a high-risk area near the California-Mexico border. Regardless, this study has limitations. First, an assumption of RDS is that there is a social network and, if sampling were to continue, all eligible participants would be recruited. Unfortunately, this cannot be inferred, but several steps were taken to aim for collecting a representative sample (i.e., formative research, preselection of diverse seeds, long recruitment chains, use of weighted estimates based on size of social network, and accurate assessment of social network size). Also, it is possible that traumatic events and psychological distress in this border community may be different than those of undocumented immigrants residing in other parts of the United States or immigrants from other countries of origin. Moreover, our sample was predominately female, and on average participants had lived in the United States for more than 10 years. Thus, our data is most representative of undocumented Mexican women who have made the United States their home, most of whom are members of and living with mixed-status families where some family members are U.S. citizens. Furthermore, the information gathered was based on retrospective reporting, which may lead to biases and may result in lower estimates of events and distress than contemporaneous reporting (Brewin, Andrews, & Gotlib, 1993). Thus, it is likely that underreporting instead of overreporting may have occurred, and that the prevalence estimates provided in this study may be even higher, which

is of concern. In addition, the primary outcome used in this study provided a generalized measure of clinically significant psychological distress. As previously mentioned, a follow-up study is needed to identify specific symptoms of psychological distress and relevant gender differences in order to better understand symptom presentation associated with trauma. Finally, this study was cross-sectional; thus, causation cannot be inferred.

Overall, our findings have important implications, including the need for the development and provision of culturally and contextually sensitive prevention and treatment interventions, as well as binational policy efforts to protect the human rights of this immigrant population. Debates on programs and policies pertaining to undocumented immigrants are complex and multifaceted, and divisiveness on immigration and welfare reform in the United States is long-standing (Kullgren, 2003). Undocumented immigrants represent an at-risk subgroup for whom access to health and human services is limited, posing significant public health implications (Kullgren, 2003). Revisiting immigration policies to devise solutions grounded in evidence and advocating to support mechanisms aimed at protecting the human rights of this immigrant population is essential to preventing the negative consequences of trauma for these immigrants and the broader communities in Mexico and the United States.

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