

# Forced migration and psychological distress among migrants in transit through Mexico

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## Abstract

**Objective.** To assess the presence of psychological distress among non-Mexican migrants in-transit through Mexico, and to evaluate the association of forced migration and psychological distress in this population. **Materials and methods.** Cross-sectional survey of a non-probability sample of non-Mexican migrants in six shelters in Mexico, November 2021 - May 2022. We assessed psychological distress with the PHQ-4, and defined forced migration as migration motivated by social or political conflict, violence or insecurity, natural disasters or sexual identity. We analyzed the association between forced migration and psychological distress, adjusting by other variables, by means of negative binomial regression. **Results.** Out of 2 355 participants, 52.2% were forced migrants, and 51% of all participants had PHQ-4 scores in the mild-severe range. Forced migration was associated with higher PHQ-4 scores (coefficient 0.11,  $p=.004$ ), as were experiences of violence before the journey (coefficient 0.16,  $p<.001$ ) and violence during the journey (coefficient .09,  $p=.013$ ). **Conclusion.** Our results confirm that persons who leave their countries of origin because of forced mobility experience more psychological distress than other types of migrants. It is important to address the mental health needs of this group of migrants in transit through Mexico.

Keywords: migrants; displaced persons; mental health; psychosocial; Mexico

## Resumen

**Objetivo.** Evaluar la presencia de malestar psicológico en migrantes no mexicanos en tránsito por México y la asociación entre migración forzada y malestar psicológico en esta población. **Material y métodos.** Encuesta transversal a una muestra no probabilística de migrantes no mexicanos en seis albergues en México, de noviembre 2021 a mayo de 2022. Se evaluó el malestar psicológico con la escala PHQ-4 y se definió migración forzada como aquella motivada por conflicto político o social, violencia o inseguridad, desastres naturales o identidad sexual. Se analizó la asociación entre migración forzada y malestar psicológico, ajustando por otras variables, mediante regresión binomial negativa. **Resultados.** El 52.2% de los 2 355 participantes eran migrantes forzados, y 51% tenía puntuaciones en el rango moderado-severo del PHQ-4. La migración forzada (coeficiente 0.11,  $p=.004$ ), las experiencias de violencia antes de iniciar el trayecto (coeficiente 0.16,  $p<.001$ ) y durante el trayecto (coeficiente .09  $p=.013$ ), se asociaron con puntuaciones más altas en el PHQ-4. **Conclusión.** Los resultados confirman que quienes dejan sus países de origen por migración forzada experimentan más malestar psicológico que otro tipo de migrantes. Es importante atender las necesidades de salud mental de este grupo de migrantes en tránsito por México.

Palabras clave: migrantes; personas desplazadas; salud mental; psicosocial; México

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Traditionally, research on migration and health in Mexico has focused on migration of Mexicans to the United States.<sup>1</sup> Even while this is a population movement of unquestionable relevance,<sup>2</sup> other population movements have gained visibility during the past decade. During this period, the number of non-Mexican migrants arriving to Mexico with the intention of reaching the United States has increased. These in-transit migrants, who previously were mostly young males of Central American origin, now include a higher percentage of women, children and adolescents, and are more diverse in their national and regional origins, including people coming from South America, the Caribbean, Africa and Asia.<sup>3</sup>

Another characteristic of the more recent flows is the diversity of reasons of mobility. Previously, most migrants were motivated by economic motives (searching for better job and income opportunities). In contrast, the current flows include people forcibly displaced because of violence and natural and human-made disasters. The profile and experiences of those who move because of these reasons are different than the ones of economic migrants, and closer to the ones of refugees and asylum seekers. While placing individuals in one or the other of the two groups is notoriously difficult, and runs the risk of reification of categories,<sup>4</sup> health-related aspects could be expected to differ between them, and to have consequences in terms of the response required from the health systems of the countries they arrive.<sup>5</sup>

Mental health is one of the areas in which economic and forced migrants differ. While studies in the Americas generally show migrants to have better mental health than non-migrants,<sup>6-8</sup> studies of forcibly displaced people consistently show high prevalences of symptoms of mental health problems including depression, anxiety and post-traumatic stress disorder. The difference between the two groups is likely attributable to the traumatic experiences that drive migration in each case.<sup>9-11</sup> Another explanation for the worse mental health status of forced migrants is the fact that their journeys are unplanned and non-voluntary, situations that can result in the feelings of hopelessness and helplessness that classic theories of the social origins of depression relate to mental health problems.<sup>12</sup>

Most studies of the mental health of migrants, either economic or forced, have been conducted in countries of final destination, failing to reflect the experiences of those who are still in transit from their country of origin to the one they intend to reside in.<sup>9,13-15</sup> Uncertainty regarding the future and the many risks to which people still on the move are exposed can have detrimental consequences on their mental health.<sup>11,16,17</sup> Seen from

the point of view of psychological theories of stress and coping in the migration process,<sup>18-20</sup> it would be expected that migrants in transit, and especially forced migrants, should be at risk of psychological distress.

Following from the above, the objective of this article is to assess psychological distress among non-Mexican migrants in-transit through Mexico, and to evaluate the association of forced migration and psychological distress in this population.

In this article, we follow the psychosocial framework of migration and mental health,<sup>21</sup> and consider mental health problems not as disorders, but as psychological reactions arising from the conditions and experiences of the migrants' journeys. We focus on manifestations of depression and anxiety, combined in a single measure of psychological distress, as we describe below.

## Materials and methods

### Design, participants and data collection

Data for this article came from a cross-sectional study of health, health risks and access to health care in six shelters for migrants in Mexico. The shelters are located in five sites (Tenosique, Tabasco; Oluta, Veracruz; Matamoros, Tamaulipas; Saltillo, Coahuila and Mexico City) along one of the main migration routes of in-transit migrants across the country, and were selected to represent a variety of situations and geographical locations.

In each shelter, a non-probability sample of migrants was obtained. Potential participants were invited by research staff to respond the questionnaire, and those who agreed were assessed for eligibility and asked to provide verbal informed consent. Eligibility criteria were: 1) to be  $\geq 18$  or unaccompanied minors  $\geq 12$  years old; 2) born in a country other than Mexico. The field work was conducted from November 2021 through May 2022.

The questionnaire included sociodemographic questions, and questions about migration history, plans and status, health needs and access to health services, experiences of violence, sexual and reproductive health, Covid-19, and mental health. It was applied in Spanish by previously trained interviewers using electronic tablets, and uploaded to an online database accessible only by the research team in order to protect confidentiality. The interviewers received training in the ethical aspects of work with this vulnerable population, and they took care to conduct the interviews in places within the shelters that ensured privacy.

## Variables

The dependent variable, psychological distress, was assessed with the PHQ-4, an instrument that includes two items from the Patient Health Questionnaire (PHQ) and two from the Generalized Anxiety Disorder (GAD), for a combined measure of symptoms of the two most common mental health problems (depression and anxiety) in the past two weeks.<sup>22</sup> The Spanish version has been previously validated,<sup>23</sup> and the instrument has shown measurement invariance between migrants, refugees, and non-migrants in Germany.<sup>24</sup> It has been validated and employed in adolescents.<sup>25-28</sup>

The PHQ-4 can be scored in different ways. The items reflecting depression symptoms and the ones reflecting symptoms of anxiety can be analyzed separately as subscales, or added together in a single score.<sup>22,26</sup> It is also frequently employed as an ordinal indicator of combined depression and anxiety, with values 0-2= no symptoms, 3-5= mild symptoms, 6-8= moderate symptoms and 9-12= severe symptoms.<sup>22</sup> For this article, we employ the added score, ranging from 0 to 12, with higher values reflecting a higher frequency of psychological distress in the reference period. Consistent with the psychosocial framework,<sup>21</sup> the decision to employ this indicator was made on the basis that we were interested in assessing the relationship between forced displacement and the whole range of scores, and not just “caseness” as indicated by the cutoffs. However, for comparability with other studies we also provide descriptive results with the cutoffs.

The main independent variable was forced displacement, defined as “A migratory movement which, although the drivers can be diverse, involves force, compulsion, or coercion”.<sup>29</sup> From the responses to the multiple-answer question “What is the reason for your travel?”, we classified as forced migrants those who responded with the options “social or political conflict”, “violence or insecurity”, “natural disasters” or “because of my sexual identity”. We classified as non-forced migrants those who did not mention any of those options, but gave one or more of the following reasons: “in search of a job”, “family reunification”, “health”, “I’m a temporary worker”. As a second independent variable indicating forced migration, we employed the response to the question “In the six months prior to starting this journey, did you experience any type of violence?” For this variable, we included as valid response categories “yes”, “no” and “prefer not to answer”, since the latter response may indicate fear of reporting the violence experienced.

As potential confounders, we included sociodemographic characteristics that could be related with the reasons for migrating and psychological distress. For

gender,<sup>30,31</sup> we employed the combination of a question about sex assigned at birth and a question about gender identity. The resulting variable had four categories: cis-male (assigned male at birth and identifies as male), cis-female (assigned female at birth and identifies as female), queer-male (assigned male at birth and either identifying as female or “part of the sexual diversity”) and queer-female (assigned female at birth and either identifying as male or “part of the sexual diversity”). We also assessed age, ethnicity (self-identifying as indigenous, afrodescendant, both, or not identifying as any of those), years of education and marital situation.<sup>10,31,32</sup> Finally, we included characteristics of the migration journey: country or region of birth, time in transit (response to the question “How long has it been since you left home?”), location of the shelter where the interview was conducted (classified as Southern Border, Central Mexico and Northern Border), who the participant travelled with (alone, with other adults, with children, both), irregular migratory condition in Mexico (self-described as travelling without migration documents, as opposed to being an asylum seeker, refugee, holding a tourist visa or having a temporal permit), and having experienced violence during the migration journey (yes/no/prefer not to answer).

## Analysis

We conducted descriptive analysis of each variable according to its distribution, as well as bivariate comparisons of the distribution of each variable by forced displacement.

Since the PHQ-4 score is a discrete numeric variable with a right-skewed distribution, we employed negative binomial regression models to evaluate the association between the independent variable and the outcome. We assessed goodness of fit with the likelihood-ratio test of the overdispersion parameter ( $\alpha$ ).<sup>33</sup> For the multivariate model, we included all the independent variables, and kept in the model the combination of covariables that minimized the Akaike Information Criterion.

## Ethical considerations

The protocol for this study was reviewed and approved by the Ethics Committee of *El Colegio de la Frontera Norte* (No. 079\_230821). Participants read or were read an informed consent form, and gave verbal consent to respond to the survey. Unaccompanied minors were considered emancipated, and they were given the option to answer the survey on the presence of an adult they trusted. No personal identification data was collected.

## Results

Among the 2 355 participants, 1 230 (52.2%) were classified as forced migrants (table I). As compared with those with other reasons for migration, this group included a higher percentage of females, they were on average older (while still being mostly young adults), and less likely to be single than non-forced migrants. They were also more likely to be afrodescendants, and had a higher educational level on average. Forced migrants were more likely to travel in groups and with minors, and to have experienced violence not only in their countries of origin, but also during their journey. Forced migrants reported longer times since leaving home, a higher percentage of them was interviewed in shelters in Central Mexico and the Northern border, and a higher percentage intended to reach the United States, as compared with non-forced migrants.

In the sample as a whole, the prevalence of mild to severe scores in the PHQ-4 was 51%, and the prevalence of moderate to severe of 11.5%. Both were more frequent among forced migrants (table I). Moderate to severe scores were more frequent among cis-females (17.8%), than among cis-males (9.1%), queer-males (9.7%) and queer females (4.8%) (not shown in tables). The scores (in count form) by type of migration appear in figure 1, showing how the distribution was right-shifted among forced migrants.

In the best-fit multivariate model (table II), forced migration was associated with a higher score in the PHQ-4 (coefficient 0.11,  $p = .004$ ), and having experienced violence in the place of origin six months prior to the migration was also independently associated with the PHQ-4 (coefficient 0.16,  $p < .001$ ), after controlling for experiences of violence during the journey and other potential confounders.

**Table I**  
**CHARACTERISTICS OF PARTICIPANTS, SURVEY IN MIGRANT SHELTERS,**  
**BY REASON FOR MIGRATION. MEXICO, NOVEMBER 2021 -MAY 2022**

Characteristic	Other reasons for migration (n= 1 125)*	Forced migration (n= 1 230)*	p-value <sup>‡</sup>	Total (n= 2 355)*
Gender (%)				
Cis-male	73.3	59.9	<.001	66.3
Cis-female	20.3	34.1		27.5
Queer-male	5.6	5.0		5.3
Queer-female	0.8	1.0		0.9
Age, yrs. (mean, standard deviation)	25.4 (9.1)	30.5 (9.5)	<.001	28.1 (9.7)
Marital status (%)				
Married/common law	39.5	42.2	.001	40.9
Single	53.9	47.8		50.7
Widowed/divorced	6.7	10.0		8.4
Ethnicity (%)				
Indigenous	10.8	4.2	<.001	7.3
Afrodescendant	6.2	12.4		9.5
Both	0.1	0.2		0.2
Neither	82.9	83.2		83.1
Years of education (%)				
0	7.5	3.3	<.001	5.3
1-6	47.5	31.8		39.3
7-9	17.6	23.6		20.7
10-12	20.7	26.0		23.5
>=13	6.8	15.3		11.2
Country/region of birth (%)				
Central America	91.3	77.0	<.001	83.8
Haiti	3.3	10.4		7.0

(continúa...)

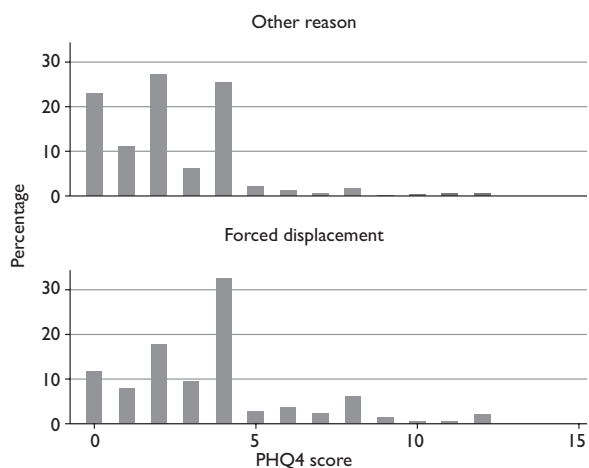
(continuación)				
Venezuela	2.4	5.7		4.1
Cuba	0.2	4.0		2.2
Other	2.8	2.9		2.9
Travelling with... (%)				
Alone	75.7	53.3	<.001	64.0
Adults	13.5	16.3		15.0
Minors	4.6	11.7		8.3
Adults and minors	6.1	18.6		12.7
Irregular migration (%)	78.5	57.8	<.001	67.7
Experienced violence during journey				
No	75.8	62.0	<.001	68.6
Yes	17.9	32.9		25.7
Prefer not to answer	6.3	5.0		5.7
Experienced violence six months prior to journey				
No	65.7	20.7	<.001	42.2
Yes	22.8	72.1		48.6
Prefer not to answer	11.5	7.2		9.3
Time since leaving home				
<=1 month	46.8	17.6	<.001	31.6
1-6 months	45.9	57.2		51.8
7-12 months	4.5	14.8		9.9
>=1 year	2.8	10.4		6.8
Region in which shelter was located				
Southern border of Mexico	38.6	13.3	<.001	25.4
Central Mexico	57.5	52.4		54.8
Norther border of Mexico	3.9	34.4		19.8
Intended country of destination				
Mexico	36.4	23.7	<.001	29.7
United States	62.6	75.7		69.4
Canada	0.1	0.2		0.1
Doesn't know	1.0	0.5		0.7
PHQ-4 (median, interquartile range)	2 (1,4)	4 (2,4)	<.001	3 (1,4)
PHQ-4 categories				
No symptoms	61.3	37.8	<.001	49.0
Mild	33.6	44.9		39.5
Moderate	3.5	12.4		8.1
Severe	1.6	5.0		3.4

\* Sample size may vary due to non-response for some variables.

‡ p-value for the difference between those in forced migration and those with other reasons, chi2 tests for categorical and t-test and Wilcoxon rank-sum test for continuous variables.

In the same model, cis-female and queer-male participants had higher scores in average when compared with cis-males, while the scores for queer-female participants were not significantly different from those of cis-males. Education had a u-shaped

association with the PHQ-4 score, with those in lower and higher education levels having the higher predicted scores. Participants from Haiti and Venezuela had higher average scores than those from Central America.



**FIGURE 1. DISTRIBUTION OF PHQ-4 SCORES, BY REASON FOR MIGRATION, SURVEY IN MIGRANT SHELTERS, MEXICO, NOVEMBER 2020-MAY 2021**

As for the journey's characteristics, in the final model, experiences of violence while in transit were associated with a higher PHQ-4 score. Interestingly, choosing the "prefer not to answer" option in this variable was also associated with a higher score. Longer time since leaving home was associated with lower scores in the PHQ-4. Being in a shelter in central Mexico or the Northern border was associated with higher scores. Those who declared the United States as their country of intended destination had higher scores than the ones who intended to stay in Mexico.

## Discussion

The first objective of this study was to assess the presence of psychological distress among migrants in-transit through Mexico. We found a median score in the PHQ-4 of 3, which falls in the upper 25<sup>th</sup> percentile of the normative data reported by Lowe and colleagues.<sup>26</sup> The median for forced migrants, in turn, falls in the upper 14<sup>th</sup> percentile reported by those authors.

At the same time 11.5% of participants scored in the moderate-severe range, lower than reported in some recent studies of general populations using the same instrument. For instance, a national study of adults in the United States found a 25% prevalence of moderate to severe scores in the PHQ-4,<sup>34</sup> a survey of adults in Chile a prevalence of 19.2%,<sup>35</sup> and one in Saudi Arabia a prevalence of 14.5%.<sup>36</sup> Those three were conducted during the first year of the Covid-19 pandemic, which may explain the high prevalences found, but a study of Danish adults

in 2016 reported a 27.9% prevalence of symptoms over the cutoff of either the depression or the anxiety subscales of the PHQ-4,<sup>37</sup> again making the prevalence in our sample seem low by comparison. Combining this evidence with the comparison of scores against normative data described in the previous paragraph leads us to reflect that among in-transit migrants symptoms of psychological distress are common, while there are not too many scores in the highest ranges. This is compatible with the notion of mental health problems in this population being a psychosocial issue, i.e. a normal reaction to extremely difficult circumstances, and not necessarily mental disorders.<sup>31</sup> This should be further investigated, together with other possible explanations for the low prevalence of moderate-severe scores, such as cultural differences in the expressions of distress<sup>38</sup> or different comprehension of the PHQ-4 items.

On the other hand, when compared with studies of the mental health of refugees,<sup>10,32</sup> and in similar populations of in-transit migrants in Mexico,<sup>16</sup> which generally report values over 20% for symptoms of depression and anxiety over the cutoff of the instruments employed, the prevalence of moderate-severe symptoms even in forced migrants in our sample (17.4%) is still relatively low. However, using the moderate-severe range as an indicator is a convention, and if the cutoff were placed in the mild range, the prevalence in our sample would be of 51% (62.2% for forced migrants). Research using the PHQ-4 should report results with different ways of scoring it, in order to facilitate comparison between studies.

As for the main objective of our study, we found the expected association between forced migration and psychological distress. This probably reflects the effect of negative experiences that are part of the drivers of forced migration. The exponentiated coefficient means that the scores of participants who were forcibly displaced were on average 12% higher than those of other migrants, showing the importance of distinguishing between sub-groups of migrants, identifying those who may require a targeted approach.<sup>16</sup>

A strength of our study was the sample size. Given the difficulties of recruiting in-transit migrants, asylum seekers and refugees for epidemiological studies, it is common to work with small samples, limited to a single location, such as one refugee camp or city. We benefited from a multi-site study that covered major sites in the more common route of in-transit migrants through Mexico, and recruited participants over an extended period of time, thus providing a rich view of this population.

On the other hand, as is often the case in studies of in-transit, mostly irregular migrants, the non-probability sample design limits generalizability. Working only in

**Table II**  
**ASSOCIATION BETWEEN FORCED MIGRATION AND MENTAL HEALTH PROBLEMS, SURVEY**  
**IN MIGRANT SHELTERS. MEXICO, NOVEMBER 2021 -MAY 2022**

Variable	Model A: characteristics before migration*		Model B: characteristics before migration + migration journey <sup>‡</sup>	
	Coefficient	p-value	Coefficient	p-value
Forced migration	.28	<.001	0.11	.004
Experienced violence six months prior to journey				
No	Ref.		Ref.	
Yes	0.15	<.001	0.16	<.001
Prefer not to answer	0.04	.547	0.11	.083
Gender				
Cis-male	Ref.		Ref.	
Cis-female	0.23	<.001	0.24	<.001
Queer-male	0.02	.829	0.25	.001
Queer-female	0.04	.837	0.11	.507
Age, yrs.	0.00	.010	-0.00	.108
Ethnicity				
Neither	Ref.		Ref.	
Indigenous	0.05	.470	0.08	.205
Afrodescendant	-0.19	.006	-0.03	.692
Both	-1.13	.030	-0.82	.103
Years of education	-0.06	<.001	-0.03	.005
Years of education <sup>^2</sup>	0.00	<.001	0.00	.026
Country/region of birth				
Central America	Ref.		Ref.	
Haiti	0.45	<.001	0.33	<.001
Venezuela	0.20	.012	0.14	.063
Cuba	0.21	.055	0.14	.181
Other	0.25	.007	0.11	.190
Experienced violence during journey				
No			Ref.	
Yes			0.09	.013
Prefer not to answer			0.27	<.001
Time since leaving home				
<=1 month			Ref.	
1-6 months			-0.01	.799
7-12 months			-0.18	.003
>=1 year			-0.15	.042
Region in which shelter was located				
Southern border of Mexico			Ref.	
Central Mexico			0.65	<.001
Norther border of Mexico			0.88	<.001
Intended country of destination				
Mexico			Ref.	
United States			0.11	.004
Canada			-0.21	.607
Doesn't know			0.23	.183

\* Negative binomial regression, n= 2 346, p<.0001. Alpha chi<sup>2</sup>= 424, p<.001. Adjusted by all variables that appear in the column.

<sup>‡</sup> Negative binomial regression, n= 2 346, p<.0001. Alpha chi<sup>2</sup>=241, p<.001. Adjusted by all variables that appear in the table.

shelters leaves out the unknown percentage of migrants who do not stay there. The conditions in the shelters made it impossible to obtain accurate data of the number of persons arriving to them during the study period, so we cannot give a response rate or assess non-response as a potential source of bias. Given the lack of data on the characteristic of all migrants in transit through Mexico, or even of those staying in shelters, we can't assume that we worked with an unbiased sample of that population. Another limitation is that the questionnaire was applied only in Spanish, so there may be issues of accuracy with the responses of Haitian participants, so the association between coming from that country and the PHQ-4 score may be due to problems with the validity of the instrument in this group. However, analyses excluding them rendered the same conclusions as the ones presented. Finally, the cross-sectional design limits the assessment of causality in the associations of interest.

To conclude, our study shows that psychological distress is relatively frequent among migrants in shelters in Mexico, and even more so among forced migrants. This highlights the role of political and criminal violence, as well as natural and human-made disasters, as social determinants of the mental health of migrants. Countries through which displaced populations transit in Latin America and other regions should develop programs for mental health and psychosocial support, focalized on this underserved population.<sup>31</sup>

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