Mental Health of Forcibly Displaced Persons from Nagorno-Karabakh: A Cross-Sectional Study

Психическое здоровье вынужденно перемещенных лиц из Нагорного Карабаха: поперечное исследование

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Original research

Samvel Sukiasyan[1,2], Armen Soghoyan[1,3], Lilit Baghdasaryan[1,4,5], Ani Grigoryan[4], Lilit Karapetyan[1,2], Karine Tataryan[1,3], Grant Avanesyan[4], Vitya Yaramishyan[4], Gayane Hayrapetyan[6,7], Zarine Harutyunyan[8,9,10,11], Naira Bayatyan[1], Anna Barseghyan[5], Anna Badalyan[1,12,13], Angela Budoyan[14,15], Hrachya Hovhannisyan[4], Artur Tonoyan[16,17], Hrachya Shaginyan[16,17], Harutyun Simonyan[17,18], Armenuhi Avagyan[19], Vergine Yesayan[19,20], Taguhi Makaryan[19]

[1] Psychosocial Recovery Center, Yerevan, Armenia

[2] Khachatur Abovyan Armenian State Pedagogical University, Yerevan, Armenia

[3] Yerevan State Medical University after Mkhitar Heratsi, Yerevan, Armenia

[4] Yerevan State University, Yerevan, Armenia

[5] "Ambra" Mental Wellbeing Center, Yerevan, Armenia

[6] Goris branch of Psychosocial Recovery Center, Goris, Armenia

[7] Goris State University, Goris, Armenia

[8] Kapan Medical Center, Kapan, Armenia

[9] Kapan branch of the Psychosocial Recovery Center, Kapan, Armenia

[10] NGO "Resilient Syunik", Kapan, Armenia

[11] European University of Armenia Kapan Branch, Kapan, Armenia

[12] International Committee of the Red Cross, Yerevan, Armenia

[13] Yerevan State College of Culture and Arts named after Charles Aznavour, Yerevan, Armenia

[14] Vardenis branch of Psychosocial Recovery Center, Vardenis, Armenia

[15] Vardenis 24-hour specialized care center, Vardenis, Armenia

Самвел Сукиасян[1,2], Армен Согоян[1,3], Лилит Багдасарян[1,4,5], Ани Григорян[4], Лилит Карапетян[1,2], Карине Татарян[1,3], Грант Аванесян[4], Витя Ярамишян[4], Гаяне Айрапетян[6,7], Зарине Арутюнян[8,9,10,11], Наира Баятян[1], Анна Барсегян[5], Анна Бадалян[1,12,13], Анжела Будоян[14,15], Грачя Оганисян[4], Артур Тоноян[16,17], Грачья Шагинян[16,17], Арутюн Симонян[17,18], Арменуи Авагян[19], Вергине Есаян[19,20], Тагуи Макарян[19]

[1] Центр психосоциального регулирования, Ереван, Армения

[2] Армянский государственный педагогический университет им. Х. Абовяна, Ереван, Армения

[3] Ереванский государственный медицинский университет им. М. Гераци, Ереван, Армения

[4] Ереванский государственный университет, Ереван, Армения

[5] Центр психического благополучия «Амбра», Ереван, Армения

[6] Горисский филиал Центра психосоциального регулирования, Горис, Армения

[7] Горисский государственный университет, Горис, Армения

[8] Капанский медицинский центр, Капан, Армения

[9] Капанский филиал Центра психосоциального регулирования, Капан, Армения

[10] Негосударственная общественная организация «Токун Сюник», Капан, Армения

[11] Капанский филиал Европейского университета Армении, Капан, Армения

[12] Международный Комитет Красного Креста, Ереван, Армения

[13] Ереванский государственный колледж культуры и искусств им. Ш. Азнавура, Ереван, Армения

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[16] *Armenian Psychoanalytic Association, Yerevan, Armenia*
[17] *National Center for Mental Health Care, Yerevan, Armenia*
[18] *Mkrtchyan Mental Care Clinic, Yerevan, Armenia*
[19] *"Armav" Continuing Education Center, Yerevan, Armenia*
[20] *Special School No. 17 for children with musculoskeletal disorders, Yerevan, Armenia*

[14] *Варденисский филиал Центра психосоциального регулирования, Варденис, Армения*
[15] *Варденисский специализированный центр круглосуточного ухода, Варденис, Армения*
[16] *Армянская психоаналитическая ассоциация, Ереван, Армения*
[17] *Национальный центр охраны психического здоровья, Ереван, Армения*
[18] *Клиника «Мкртчян Ментал Кеар», Ереван, Армения*
[19] *Центр непрерывного образования «АРМАВ», Ереван, Армения*
[20] *Специальная школа № 17 для детей с нарушениями опорно-двигательного аппарата, Ереван, Армения*

ABSTRACT

BACKGROUND: The international community is acutely facing a global problem of refugees and forcibly displaced persons. The situation is currently escalating into a crisis, creating serious humanitarian, social, and healthcare challenges. The forced displacement of the entire Armenian population of Nagorno-Karabakh in 2023 became an emergency in Armenia and highlighted a number of societal issues, including the mental health of the displaced population. What made this migration stand out was its dual nature: on the one hand, it was a flight across national borders to a neighboring country, and on the other hand, it was a return to the historical homeland with which they share a common history, culture, language, and religion.

AIM: To evaluate the mental state of the persons forcibly displaced from Nagorno-Karabakh to Armenia and the risk factors underlying their developing anxiety and depression disorders.

METHODS: We performed statistical data processing using hierarchical regression analysis.

RESULTS: The study was conducted among 733 respondents. The majority of the forcibly displaced persons were women. Most of the refugees were married, relocated with their families, and had mainly secondary education. One in five reported a history of mental trauma. More than half of the respondents showed signs of depression and anxiety that required therapeutic intervention. These individuals exhibited significant impairments in functionality and capacity for work.

CONCLUSION: The study revealed the severity and prevalence of anxiety and depression disorders in forcibly displaced persons. Forced displacement was the key factor in the development of mental disorders in this population. Demographic characteristics, such as sex, age, and marital status, also have a significant impact.

АННОТАЦИЯ

ВВЕДЕНИЕ: Перед мировым сообществом остро стоит глобальная проблема беженцев и вынужденно перемещенных лиц. В современных условиях ситуация приобретает масштабы кризиса, порождая серьезные вызовы для гуманитарной, социальной сфер и здравоохранения. Вынужденное переселение всего армянского населения Нагорного Карабаха в 2023 г. стало чрезвычайной ситуацией в Армении и обострило для общества ряд вопросов, в том числе состояние психического здоровья переселенцев. Особенность данной миграции заключалась в ее двойственной природе: с одной стороны, это было бегство через национальные границы в соседнюю страну, а с другой — возвращение на историческую родину, с которой объединяла общая история, культура, язык, религия.

ЦЕЛЬ: Изучить психическое состояние вынужденно перемещенных лиц из Нагорного Карабаха в Армению и факторы риска, лежащие в основе формирования у них тревожных и депрессивных расстройств.

МЕТОДЫ: Проводилась статистическая обработка данных с применением иерархического регрессионного анализа.

РЕЗУЛЬТАТЫ: Исследование было проведено с участием 733 респондентов. Среди вынужденно перемещенных лиц преобладали женщины, большинство переселенцев состояли в браке и переселялись с семьей, имели в основном среднее образование. Каждый пятый отмечал в анамнезе психическую травму. Более половины респондентов проявляли признаки депрессии и тревоги, требовавшие терапевтического вмешательства. У этих лиц отмечались выраженные нарушения работоспособности и повседневного функционирования.

ЗАКЛЮЧЕНИЕ: У вынужденно переселенных лиц выявлена высокая распространенность и значительная выраженность тревожных и депрессивных расстройств. Ключевым фактором развития психических нарушений в этой группе стало вынужденное переселение. Существенное влияние также оказали демографические характеристики: пол, возраст и семейное положение.

Keywords: *refugees; forcibly displaced persons; mental health; depression; anxiety; risk factors*
Ключевые слова: *беженцы; вынуждено перемещенные лица; психическое здоровье; депрессия; тревога; факторы риска*

INTRODUCTION

In the third millennium, the problem of refugees and forcibly displaced persons (FDPs) has become a global crisis. Against the background of global geopolitical changes, this issue is becoming more acute and poses serious humanitarian, social, healthcare, and other problems. The changes make some people flee, others provide shelter and protection. Mass forced displacement is considered a risk factor for the development of mental disorders. Every society faces migration in one form or another. Different countries play different roles in this process, being a source of emigration or a host state or serving as transit territories [1].

The non-governmental organization Armed Conflict Location & Event Data Project, which specializes in conflict data collection, estimates that the number of conflicts has increased by 40% since 2020 and that one in six people in the world was exposed to a conflict in 2024 [2]. According to the Office of the United Nations High Commissioner for Refugees, there were 110 million FDPs in the world in mid-2023, of which 62.5 million people were internally displaced, 36.4 million people were refugees, 6.1 million people were asylum seekers, and 5.3 million were other people in need of international assistance [2]. At the same time, there is a tendency towards a further increase in the number of displaced persons, which is due to the persistence and even strengthening of factors that contribute to migration (poverty, lack of security, lack of access to basic services, armed conflicts, environmental issues, natural disasters)[1]. In Post-Soviet history, mass population movements began as a result of the uncivilized collapse of the Soviet Union in 1991 and were characterized by tense interconnections between migration and forced displacement [3, 4]. Interethnic conflicts and national liberation movements in Central Asia and the South Caucasus in the first half of the 1990s caused flows of many thousands of refugees and displaced persons (in Sumgait, Baku, Nagorno-Karabakh, Abkhazia, South Ossetia, Chechnya, Tajikistan, and Transnistria) [5]. In 2023, Armenia faced an emergency of the forced displacement of all Armenians from Nagorno-Karabakh to Armenia after almost a year of blockade and hostilities. Extreme conditions developed in Nagorno-Karabakh after the 44-day war, which resulted in the occupation of most of the territory of Nagorno-Karabakh and the entry of Russian peacekeeping forces into the region[2] [6].

Migrants can relocate within their own country or to neighboring (or other) countries [7]. In the case of the Karabakh refugees, the situation was exceptional. When

[1] The health of refugees and migrants. 2022. Available from: https://www.who.int/ru/news-room/fact-sheets/detail/refugee-and-migrant-health

[2] Reevell P. Over 100,000 Armenians have now fled disputed enclave Nagorno-Karabakh. Available from: https://abcnews.go.com/International/93000-armenians-now-fled-disputed-enclave-nagorno-karabakh/story?id=103596275

fleeing from the hostilities, people were relocating to the current sovereign territory of Armenia, because their historical homeland had become part of another country due to the political decision of past Soviet administration. These refugees did not settle in camps (as is the case almost all over the world) but in hotels, dormitories, apartments, and houses of their compatriots. Moreover, the Armenian government take them under protection[3]. Thus, it was a flight across national borders to a neighboring country, but a country that is their historical homeland, with which they shared a common history, culture, language, and religion. The factor of resettling of FDPs and the living conditions of the new place are important for the development of mental health [8]. Pham et al. [8] noted that, taking into account factors of exposure to violence, social cohesion, unemployment, and access to basic services, FDPs in the camps had an average rate of distress symptoms that was 19% higher than in those outside the camps.

Despite reports of a high prevalence of mental health problems among refugees, estimates of specific mental disorders vary significantly across studies, owing to both methodological and contextual factors [9]. The mental health of FDPs can be affected not only by traumatic events related to war, but also by stressors caused by displacement and resulting from migration and post-migration experiences [10].

The status of a refugee or FDP has a profound impact on mental health with an increased risk of depression and anxiety disorders, psychotic disorders [11–14], suicidal tendencies [15, 16], post-traumatic stress disorder (PTSD), chronic pain sensations, sleep disorders, various mental health disorders, and somatic sensations [17–22]. In general, the so-called migrating population is heterogeneous in terms of health and vulnerability, defined by suboptimal metabolic risk factors in the country of origin (e.g., morbid obesity, dysglycemia, hypertension, and dyslipidemia), unfavorable travel conditions and resulting stress, poverty, and anxiety, as well as various consequences of acculturation and access to health services in the country of destination [22]. According to Cheung et al. [23], low- and middle-income countries often have a high level of mental disorders, but a lower prevalence of somatic distress. More than half (55%) of the respondents were considered by the authors to be at risk of developing somatic distress (PHQ-15≥6), and the prevalence of the disorder was considered to be medium (18%) or high (13%). Significant correlations (p<0.05) were observed between somatic distress and age, female sex, economic status, depression, post-traumatic stress, and multiple injuries. The risk of developing somatic distress was also significantly correlated with increased functional disability [23]. Many migrants have an increased risk of cardiovascular disease and face significant challenges in overcoming economic and health system barriers to quality healthcare [22].

People displaced due to violence and conflict face stressful factors that can increase the risk of suicide. There have been very few studies on evidence-based strategies for preventing suicide among asylum seekers and refugees. However, context-appropriate early detection and intervention can be a promising way to support people from these population groups [24, 25].

There is a high risk of somatic reactions and existential dilemmas (when belief patterns are questioned) [26, 27]. The risk of PTSD symptoms in forcibly displaced persons is associated with the precarious status of a refugee in the host country [28].

Assessment of the prevalence of mental disorders among FDPs proved to be a difficult problem, because it depends on the clinical features of the disorders and research methodology, which manifested itself in dramatic differences in data: according to different sources, the prevalence of depression varies from 2.3% [29] to 80% [30], that of PTSD from 4.4% [31] to 86% [30], and that of anxiety disorders from 20.3% [32] to 88% [30, 33]. These figures reflect a high degree of statistical heterogeneity.

A cross-sectional study of a randomly selected sample conducted by Nissen et al. [9] showed that scores above the cut-off level on the Harvard Trauma Questionnaire (HTQ) and the Hopkins Symptom Checklist-25 (HSCL-25) predicted the likelihood of PTSD (HTQ>2.06), anxiety (HSCLanxitey>1.75), and depression (HSCLdepression >1.80). Weighted estimates of the prevalence of PTSD, anxiety, and depression obtained by the authors [9] using HSCL-25 were 29.7% (25.4–34.4%), 30.1% (25.7–34.9%), and 45.2% (40.6–49.8%), respectively. The cumulative exposure to potentially traumatic experiences before or during the relocation appeared to be a clear risk factor for all outcomes, and female sex was a risk factor for anxiety and depression, although only in the adjusted analysis.

[3] Badalyan N. Displaced persons from Nagorno-Karabakh will use the rights of refugees. Available from: https://arminfo.info/full_news.php?id=80001

According to the most recent data, the total prevalence score was 38.90% (95% confidence interval (CI): 29.63; 48.17) for anxiety disorders, 38.16% (95% CI: 32.16; 44.15) for depression, and 39.62% (95% CI: 32.87; 46.36) for PTSD [34].

Many factors affect the mental health of a refugee or FDP, with war trauma considered to be the leading and most significant one [35]. A group of English researchers studied the stress factors that determine the mental well-being of FDPs [36]. To conduct a reflexive thematic analysis, the authors used a system of four main stress factors, focusing on sources of stress, such as trauma, cultural adaptation, and relocation. The main stress factors were difficulty in accessing housing and employment, exacerbated by language barriers, separation from the family, and the ongoing war-related trauma. These stress factors are supposed to increase feelings of fear, uncertainty, sadness, numbness, disorientation, confusion, helplessness, and anxiety.

The role of adverse socio-economic conditions (lack of social support, unemployment, financial stress, poor knowledge of the language of the host country) is also significant for refugees [31, 37]. Socio-demographic factors were also described as unfavorable predictors for long-term mental health in publications by Kessler et al. [38] and Wittchen et al. [39]. The literature names another factor affecting the prevalence of mental disorders, the factor of motivation behind a refugee or a FDP: the prevalence of mental disorders in economic refugees is approximately half that in FDPs (21% vs. 40%) [18]. The susceptibility of refugees to mental disorders is also due to migration and post-migration processes and factors that can complicate the clinical presentation and changes over time in trauma-induced disorders [33, 37, 40]. Porter and Haslam [35] emphasize that the mental health of refugees and FDPs determines the socio-political context of their life. The authors observed the worst outcomes in persons living in special institutions, disadvantaged economically, displaced within their own country and repatriated to the country from which they had previously fled, or those for whom the conflict was still unresolved [35].

In response to the forced mass displacement from Nagorno-Karabakh to Armenia, this study aimed to study the mental state and risk factors for anxiety and depression disorders among the affected forcibly displaced persons.

Objectives were set based on the study aim. The study had to answer the following questions:

1. What are the social and demographic characteristics of the FDPs from Nagorno-Karabakh?
2. What is the traumatic experience of the FDPs from Nagorno-Karabakh?
3. What is the manifestation of depression and anxiety observed in FDPs?
4. How do functional impairment and personal incapacity present in the FDPs from Nagorno-Karabakh?
5. What role can socio-demographic factors and factors associated with traumatic experiences play in the manifestations of depression and anxiety?

METHODS

Study design

The study was conducted in October 2023 using the cross-sectional method with a single interview of all FDPs from Nagorno-Karabakh located in the regions of Armenia bordering Azerbaijan (Goris, Kapan, Sisian, Gegharkunik, and Ararat). The data collection was carried out shortly after the displacement prior to the government's further decision on refugees permanent accommodation in the towns and villages taking into account individuals' preferences.

Sample characteristics

The study included FDPs from Nagorno-Karabakh 18 and older without restrictions in their physical and mental status, women and men living in temporary accommodation in hotels, dormitories, hostels, sanatoriums, and boarding houses. The sample size was not limited. We sought to interview as many displaced persons as possible, in order to obtain more objective and representative results.

Measurements

The mental health of the FDPs was assessed using the Patient Health Questionnaire-9 (PHQ-9) [41] and the Generalized Anxiety Disorder-7 (GAD-7) questionnaire [42, 43]. Data related to the socio-demographic characteristics of the respondents were also collected (see Appendix 1 in the Supplementary). The socio-demographic questionnaire included the following items: age, sex, marital status, education level, relocation to Armenia with or without a family, presence and type of trauma (human losses, injuries, burns, etc.), place of (temporary) residence of the displaced persons.

The PHQ-9 questionnaire allows to determine both the presence and severity of depression [41, 44–48].

Interviewees should answer the question: "*Over the last 2 weeks, how often have you been bothered by any of the following problems?*". Each question has 4 answer options assigned a score: "not at all" (0 points), "several days" (1 point), "more than half the days" (2 points), and "nearly every day" (3 points). Scores may range from 1 to 27. "Minimal depression" corresponds to 1–4 points; "mild depression" to 5–9 points; "moderate depression" to 10–14 points; "moderately severe depression" to 15–19 points; and "severe depression" to 20–27 points (see Appendix 2 in the Supplementary). The degree of functional impairment in the FDPs was determined with the PHQ-9 questionnaire, using the answers to the question "*If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?*": "not difficult at all", "somewhat difficult", "very difficult", and "extremely difficult". The 9-item PHQ-9 questionnaire evaluates depressive symptoms based on the criteria of the American Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) [49].

The GAD-7 questionnaire was used for the screening generalized anxiety disorder and assessing the severity of anxiety using self-reporting [42]. Interviewees should answer the question: "*Over the last 2 weeks, how often have you been bothered by any of the following problems?*". The GAD-7 anxiety score is calculated by assigning scores from 0 to 3, respectively, to the following answers: "not at all", "several days", "more than half the days", and "nearly every day". Total scores may range from 0 to 21. "Minimal" anxiety corresponds to 0–4 points; "mild" to 5–9 points; "moderate" to 10–14 points; and "severe" to 15–21 points (see Appendix 3 in the Supplementary). The degree of disability in the FDPs was determined with the GAD-7 questionnaire, using the answers to the question "*If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?*": "not difficult at all", "somewhat difficult", "very difficult", and "extremely difficult". The GAD-7 questionnaire evaluates symptoms of anxiety, which are also found in 30–50% of patients with depression [48, 50]. Initially designed to detect generalized anxiety disorder, it has proven to be an effective screening tool for panic disorder, social anxiety disorder, and PTSD [48].

GAD-7 proves itself to be an effective tool for screening for anxiety and assessing its severity in clinical practice and research [42, 45]. A meta-analysis performed by Plummer et al. [51] showed that GAD-7 is characterized by acceptable accuracy at a limit value of 8 (sensitivity 0.83, specificity 0.84 for pooling 12 samples and 5,223 subjects).

Screening for depression is far from being universal; the main depression questionnaire currently used is PHQ-9 [50]. Notably, it cannot be used to confirm a clinical diagnosis of depression [50], so we used Russian-language validated scales [52, 53].

Survey administration

The forced displacement began on September 23, 2023, after the resumption of the military conflict resumed on September 19, 2023. Almost the entire population of Nagorno-Karabakh left the region in late September and early October[4,5]. We initiated this study as early as in October 2023. A group of psychiatrists and psychologists traveled to the border regions where the displaced were accommodated to evaluate their needs and identify persons with mental health problems. The FDPs were additionally offered to take part in this study. Questionnaire interviews were conducted and the questionnaires completed with the oral consent of each subject. Unlimited time was allowed to complete the questionnaires, however, in most cases, the respondents needed 30–40 minutes to fulfill the task.

Statistical analysis

Data analysis was performed using IBM SPSS Statistics for Windows, version 21.0. Quantitative variables were described with the arithmetic mean (standard deviation).

To analyze the factors associated with mental health indicators (PHQ-9 and GAD-7 scores), a multiple linear regression analysis was performed in order to investigate the role of socio-demographic factors and factors associated with traumatic experiences in the manifestations of anxiety and depression. The regression analysis was performed with the stepwise input of variables: first, socio-demographic variables (sex, age, marital status, education level) were

[4] One hundred thousand new residents of Armenia: how the UN helps the country cope with the burden // UN News: Global View. Human Fates, October 23, 2023. Available from: https://news.un.org/ru/story/2023/10/1446092

[5] Armenia and Azerbaijan: The UN Special Adviser on the Prevention of Genocide is "concerned about the situation in the South Caucasus" // UN News: Global View. Human Fates, October 10, 2023. Available from: https://news.un.org/ru/story/2023/10/1445647

entered into the model as the first predictor block, then displacement-related factors (being displaced with the family at this time or not and the presence of various types of trauma) were added as the second predictor block.

Multicollinearity diagnostics was performed using the calculation of the variance inflation factor (VIF), tolerance values, and the condition index [54]. All VIF values were below 1.1, which is significantly lower than the generally accepted cut point of 5. Strong multicollinearity is usually associated with VIF>10 [55]. Tolerance values exceeded 0.9, demonstrating minimal multicollinearity problems, since values below 0.2 indicate potential problems [56]. In addition, the condition index values in the full models remained below 12, indicating no serious multicollinearity problems, as values higher than 15 suggest potential problems and values higher than 30 indicate strong multicollinearity [57, 58]. These results confirm that multicollinearity was not a concern in the analyses performed.

The interpretation of the regression analysis results included the evaluation of the statistical significance of the models (F-statistics, $p<0.05$) and the proportion of the variance explained (R^2 and adjusted R^2), as well as the assessment of the additional contribution of the second block of variables (ΔR^2 and ΔF). Both non-standardized (B) and standardized (β) regression coefficients were analyzed to estimate the magnitude and direction of connections between predictors and dependent variables. All statistical tests were two-sided, with a significance level of $p<0.05$. For cases with missing data, the listwise deletion method was used, which is used in SPSS by default when performing regression analysis [54, 55].

Ethical considerations

This study was not premeditated, but was conducted in response to the emerging humanitarian situation. Due to the current crisis circumstances and the need for an urgent examination of the FDPs, we did not receive an ethics committee opinion. Respondents were provided with oral assurance about the anonymity and confidentiality of the study.

RESULTS

Respondent characteristics

None of the FDPs refused to participate in the study; 866 displaced persons agreed to answer the questions. After data processing, the final analytical sample was 733 subjects (mean age: 44.7 years; SD=17.3). The main exclusion criterion was the blank items left by a number of respondents in the main socio-demographic questions. Many questionnaires were not included in the analysis, because the participants chose the answer "other" to the questions about education and marital status without providing additional clarifying details, which made a meaningful categorization for regression analysis impossible.

Characteristics of the study sample

Table 1 presents the descriptive statistics for the parameters we selected for both the entire sample and for individual regions of the country. Respondents included 150 (20.5%) people from Goris, 115 (15.7%) from Kapan, 161 (22.0%) from Sisian, 173 (23.6%) from the Gegharkunik region, and 134 (18.3%) from Ararat, which indicates a relatively uniform distribution of the FDPs across the regions of the country. The sample in our study was predominantly female. Most of the migrants were married (n=558, 76.1%) and relocated to Armenia with their family (n=615, 85.2%). All FDPs had at least secondary education, and at most higher education. Almost every fifth migrant had a history of physical and mental trauma: death of relatives in the two Karabakh wars, injuries in the 44-day war, combined injuries, burns from an explosion and a fire at a gas station in Stepanakert, etc.

Psychometric testing

The mean depression score for the entire sample was 7.98 (SD=6.408). The severity of manifestations of depression in the entire sample and by region is presented in Table 2. This table shows that the majority (61.9%) of FDPs had depression requiring treatment. However, the nature and scope of treatment should be individualized depending on the severity of the disorder. Moreover, almost one in five persons demonstrated severe depression, which always requires psychopharmacological intervention.

The general picture of functional impairment according to the PHQ-9 in the entire sample and by region is presented in Table 3. Respondents were asked to answer the question "*If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?*". As follows from Table 3, the existing problems caused severe functional impairment in the surveyed patients. A total of 306 (41.8%) respondents demonstrated functional impairment that caused serious problems in life.

Table 1. Socio-demographic characteristics of the forcibly displaced persons

Parameters	Goris		Kapan		Sisian		Gegharkunik*		Ararat		Entire sample	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Number of respondents	**150**	**20.5**	**115**	**15.7**	**161**	**22.0**	**173**	**23.6**	**134**	**18.3**	**733**	**100**
Sex												
Men	60	40.0	41	35.7	70	43.5	—	—	53	39.6	224	39.2
Women	90	60.0	74	64.3	91	56.5	—	—	81	60.4	336	60.8
Total	150	100	115	100	161	100	—	—	134	100	560	100
Marital status												
Single	22	14.7	31	26.9	38	23.6	50	28.9	34	25.4	175	23.9
Married	128	85.3	84	73.1	123	76.4	123	71.1	100	74.6	558	76.1
Total	150	100	115	100	161	100	173	100	134	100	733	100
Relocation with and/or without family												
With family	109	77.9	84	73.1	153	95.1	153	88.4	116	87.2	615	85.2
Without family	31	22.1	31	26.9	8	4.9	20	11.6	17	12.8	107	14.8
Total	140	100	115	100	161	100	173	100	133	100	722	100
Education												
Secondary	90	60.0	60	52.2	100	62.1	113	65.3	70	52.2	433	59.1
Special	30	20.0	51	44.3	29	18.1	28	16.2	27	20.2	165	22.5
Higher	30	20.0	4	3.5	32	19.8	32	18.5	37	27.6	135	18.4
Total	150	100	115	100	161	100	173	100	134	100	733	100
Trauma												
Yes	27	20.6	29	25.2	30	18.6	14	8.1	20	20.1	120	17.8
No	104	79.4	86	74.8	131	81.8	159	91.9	75	78.9	555	82.2
Total	131	100	115	100	161	100.4	173	100	95	100	675	100
Type of trauma												
Human losses	15	60.0	5	10.4	17	68.0	1	25.0	1	5.9	39	32.8
Burns**	2	8.0	1	2.1	2	8.0	0	0.0	0	0.0	5	4.2
Injuries	2	8.0	23	47.9	2	8.0	1	25.0	14	82.4	42	35.3
Combined	1	4.0	12	25.0	2	8.0	0	0.0	0	0.0	15	12.6
Other	5	20.0	7	14.6	2	8.0	2	50.0	2	11.8	18	15.1
Total	25	100	48	100	25	100	4	100	17	100	119	100

Note: *No data is available on the sex distribution of the surveyed persons in Gegharkunik. **We refer to the persons who were burned in the explosion at a gas station during the mass migration to Armenia.

Table 2. Severity of depressive symptoms manifestations in forcibly displaced persons according to the Patient Health Questionnaire (PHQ-9)

Severity of depression and need for therapy	Region										Entire sample	
	Goris		Kapan		Sisian		Gegharkunik		Ararat			
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
No depression, no need for therapy (≤4 points)	24	16.0	51	44.3	55	34.2	105	61.0	44	32.8	279	38.1
Mild (5–9 points) and moderate (10–14 points) depression, the need for treatment should be determined	70	46.7	62	53.9	79	49.1	57	33.1	55	41.0	323	44.1
Moderately severe (15–19 points) and severe (20–27 points) depression, therapeutic intervention is necessary	56	37.3	2	1.7	27	16.7	10	5.8	35	26.1	130	17.8
Total	150	100	115	99.9	161	100	172	99.9	134	99.9	732	100

Table 3. Degree of functional impairment in forcibly displaced persons according to the Patient Health Questionnaire (PHQ-9)

Degree of functionality	Region										Entire sample	
	Goris		Kapan		Sisian		Gegharkunik		Ararat			
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Not difficult at all (0 points)	28	18.7	43	37.4	30	18.6	61	35.5	15	11.2	177	24.2
Somewhat difficult (1 point)	43	28.7	56	48.7	46	28.6	61	35.5	43	32.1	249	34.0
Very difficult (2 points)	59	39.3	14	12.2	46	28.6	40	23.3	41	30.6	200	27.3
Extremely difficult (3 points)	20	13.3	2	1.7	39	24.2	10	5.8	35	26.1	106	14.5
Total	150	100	115	100	161	100	172	100	134	100	732	100

Table 4. Severity of anxiety in forcibly displaced persons according to the Generalized Anxiety Disorder Questionnaire (GAD-7)

Anxiety level	Region										Entire sample	
	Goris		Kapan		Sisian		Gegharkunik		Ararat			
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Minimal (0–4 points)	31	20.7	49	42.6	66	41.0	126	73.3	43	32.1	315	43.0
Mild (5–9 points)	46	30.7	47	40.9	48	29.8	20	11.6	41	30.6	202	27.6
Moderate (10–14 points)	44	29.3	17	14.8	22	13.7	24	14.0	35	26.1	142	19.4
Severe (15–21 points)	29	19.3	2	1.7	25	15.5	2	1.2	15	11.2	73	10.0
Total	150	100	115	100	161	100	172	100	134	100	732	100

Table 4 presents data from the anxiety assessment both for the entire sample and by region.

As with depression, the highest mean anxiety score in the entire FDPs sample was 6.67 (SD=5.385). The minimal anxiety level (0–4 points), which did not require therapeutic intervention, was detected in 43.0% of the respondents. An anxiety level requiring some sort of professional therapeutic intervention (psychotherapy or psychopharmacotherapy) was detected in 57% of the FDPs.

A similar trend was observed in the disability of the FDPs assessed with the GAD-7 questionnaire in the entire sample and in individual regions (Table 5). Respondents

Table 5. Degree of disability in forcibly displaced persons according to the Generalized Anxiety Disorder Questionnaire (GAD-7)

Degree of disability	Region										Entire sample	
	Goris		Kapan		Sisian		Gegharkunik		Ararat			
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Not difficult at all (0 points)	24	16.0	41	35.7	30	18.6	65	37.8	12	9.0	172	23.5
Somewhat difficult (1 point)	48	32.0	52	45.2	43	26.7	53	30.8	39	29.1	235	32.1
Very difficult (2 points)	56	37.3	20	17.4	43	26.7	42	24.4	38	28.4	199	27.2
Extremely difficult (3 points)	22	14.7	2	1.7	45	28.0	12	7.0	45	33.5	126	17.2
Total	150	100	115	100	161	100	172	100	134	100	732	100

Table 6. Hierarchical multiple regression predicting anxiety and depression based on socio-demographic and displacement-related factors

Variable	Block 1			Block 2		
	B	SE	β	B	SE	β
Anxiety model						
Constant	4.828	0.793	—	6.106	1.013	—
Sex	1.983**	0.487	0.181	2.007**	0.486	0.183
Age	0.023	0.014	0.074	0.019	0.014	0.061
Marital status	0.698	0.568	0.056	0.730	0.567	0.058
Education level	0.431	0.619	0.031	0.457	0.617	0.033
Relocation with family	—	—	—	–1.385*	0.651	-0.095
Trauma	—	—	—	0.127	0.578	0.010
R^2	0.046	—	—	0.055	—	—
Adjusted R^2	0.038	—	—	0.043	—	—
F	5.858**	—	—	4.689**	—	—
ΔR^2	—	—	—	0.009	—	—
ΔF	—	—	—	2.289	—	—
Depression model						
Constant	4.306	0.925	—	4.974	1.182	—
Sex	0.917	0.568	0.072	0.962	0.568	0.075
Age	0.067**	0.016	0.184	0.064**	0.016	0.178
Marital status	0.827	0.663	0.056	0.844	0.662	0.058
Education level	0.878	0.721	0.054	0.872	0.721	0.054
Relocation with family	—	—	—	-0.926	0.761	-0.054
Trauma	—	—	—	0.867	0.675	0.057
R^2	0.049	—	—	0.056	—	—
Adjusted R^2	0.042	—	—	0.044	—	—
F	6.335**	—	—	4.760**	—	—
ΔR^2	—	—	—	0.006	—	—
ΔF	—	—	—	1.580	—	—

Note: Block 1 — socio-demographic variables (sex, age, marital status, education level). Block 2 — displacement-related factors (being displaced with the family at this time or not and the presence of various types of trauma). B — non-standardized regression coefficient; β — standardized regression coefficient; SE — standard error. *p<0.05; **p<0.001.

were asked to answer the question "*If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?*". Very difficult and extremely difficult problems were registered in 325 respondents, representing 44.4% of all surveyed FDPs.

Predictors of depression

Statistically significant models were identified at both stages of the analysis of predictors of depression (Table 6). Socio-demographic factors explained a small but significant proportion of the variance of the dependent variable. Age, however, appeared to be the only significant predictor in the first block, indicating that older subjects experienced higher levels of depression. The addition of displacement-related factors did not result in a statistically significant improvement in the model. In the final model, age remained the only significant predictor of depression. Other factors studied, including sex, marital status, education level, relocation with family, and trauma, were not associated with depression.

Predictors of anxiety

Statistically significant predictor models of anxiety were also identified at both stages of the regression analysis. Among socio-demographic factors, sex was the only significant predictor of anxiety, with women showing higher levels of anxiety than men. The addition of displacement-related factors resulted in a slight improvement in the model, which was close to the threshold of statistical significance. In the final model, two factors appeared to be significant predictors of anxiety: sex (with higher rates in women) and relocation with family (a protective factor). Other variables were not associated with the severity of anxiety.

DISCUSSION

Almost all studies in this area surveyed individuals who relocated from one economic, cultural, or ethnic community to another, which acted actually as a trigger, rather than a pathogenic element, in the development of mental disorders. We surveyed a group that was forced to relocate to another state, but to the historical homeland, therefore the displaced did not experienced any cultural or ethnic barriers. The displaced also benefited from the efforts of the state and society to accommodate them in hotels, dormitories, sanatoriums, and boarding houses, rather than in special camps. This context makes our study unique.

Both our study and a number of others have shown that FDPs have a high level of mental disorders, including depression, PTSD, and anxiety [59–61]. A comparison of our data on the prevalence of anxiety and depressive disorders among FDPs shows that they align completely with the significantly divergent prevalence rates reported by other investigator. Forcibly displaced persons face multiple stressors while awaiting for permanent asylum or relocation, often experiencing severe emotional stress. According to our sample, the majority of FDPs were women (which is due to the demographic situation in Nagorno-Karabakh), most of the migrants were married and relocated with their families, and the majority had secondary education. One in five reported a history of mental trauma. Only 38.1% of the FDPs were not diagnosed with depression, therefore they did not need treatment. In 61.9% of the FDPs, depression was at a clinically significant level. The nature and scope of treatment is decided on an individual basis, depending on the severity of the disorder. Moreover, almost every fifth respondent (17.8%) was found to have severe depression, which required psychopharmacological intervention. Anxiety requiring professional therapeutic intervention (psychotherapy or psychopharmacotherapy) was detected in 57.0% of the FDPs. A hierarchical regression analysis showed that women were particularly vulnerable to anxiety, while older age was more associated with depression. Relocation with the family proved to be a protective factor specifically against anxiety symptoms. The obtained data strongly suggest that the process of forced migration to other countries is one of the generating factors in the development of mental disorders.

Our data are consistent with the depression and anxiety prevalence estimates published in the scientific literature: 2.3–80% for depression [29, 30] and 20.3–88.0% for anxiety [30, 32, 33]. Strømme et al. [61] reported that symptoms indicating anxiety and depression were detected in 35% of the displaced persons and symptoms characteristic of PTSD were detected in 7% of the displaced.

The role of factors contributing to depression and anxiety [60, 61] was also confirmed. Traumatic experiences sustained before migration indirectly caused the development of depression and anxiety, increasing life difficulties after migration. Yilmaz et al. [60] reported that even long after relocation, displaced persons demonstrated high levels of depression, anxiety, and PTSD. Without denying the key role of pre-migration injuries, the authors emphasize that post-migration problems further exacerbate the mental

disorders of FDPs. Traumatic experiences, according to Strømme et al. [61], are associated with both chronic pain and symptoms of anxiety and depression, with the latter also being associated with migration without family members.

The literature on refugee problems describes a multiple number of factors that play a role in the occurrence and development of mental disorders in refugees and FDPs, which are conventionally divided into pre-, intra-, and post-migration social, economic, personal, psychological, cultural, and other issues [62]. Socio-demographic factors have also been reported as adverse predictors of mental health in the literature [38, 39].

For FDPs, mental health issues are even more important than physical problems, because they left their past in the country of permanent residence and arrived in a country where they are trying to find their present while remaining completely in total ignorance about the future. In their present, they are faced with many problems at once, which can be seen as the search for a place in the sun. The numerous problems make them the most vulnerable members of society. They need to experience the circumstances of relocating and arriving in another country, adapt to the living conditions in the host country, accept the rules of the game in the new society, the established relationships, the specifics of integration of newcomers, living and working conditions that create a variety of needs for the refugees and FDPs, ranging from economic to medical, and sometimes psychiatric.

An analysis of the literature and our data suggests that public health policies and practices focused on displaced persons should take into account the risks associated with migration, especially FDPs, and target the most common disorders, primarily mental health issues, among the displaced. These results highlight the need for comprehensive, long-term mental health interventions that address both past trauma and current life challenges. The specific context of this study may play a role in differentiating the most significant factors in future studies.

This study was conducted without discussing the study protocol with an ethics committee, as it was a cross-sectional study limited in time. It is important to note that this was not a long-term study. The obtained results relate to the initial period of migration of the residents of Nagorno-Karabakh to Armenia and demonstrate the so-called cross-section of their mental status. Anxiety and depression in FDPs were assessed using exclusively psychometric tools, since the conditions of this study did not allow a clinical assessment of the condition of the subjects.

The PHQ-9 and GAD-7 questionnaires we employed provide scores for anxiety and depression, in other words, they demonstrate the severity of the disorder. Validation studies of these screening tools showed a sensitivity of 0.77 to 0.81 for depression and a specificity of the PHQ-9 scale of 0.91 to 0.94, a sensitivity of 0.89 and a specificity of 0.82 for anxiety. PHQ-9 and GAD-7 have high internal and test-retest reliability, as well as a valid design and factor structure [63]. The authors of the questionnaire found acceptable sensitivity and specificity values when the questionnaire was used as a general screening tool for other anxiety disorders (panic disorder, social anxiety, PTSD) (GAD-7, score ≥8: sensitivity — 0.77, specificity — 0.82) [51]. These data guide the further actions of the specialist in relation to the need for and scope of treatment, as well as approaches to its organization. The duration of symptoms, their severity, and the degree of functional impairment, as determined by the PHQ-9 and GAD-7 scores, used in conjunction, help the specialist decide on the importance of and need for treatment.

The depression and anxiety levels were divided according to the categories used in the questionnaires. However, the sensitive question here is whether this categorizationcan be applied to an Armenian sample, particularly to a sample that is highly vulnerable in this regard. This question arises from the general issue of adapting psychometric scales. But, unfortunately, they are not adapted in Armenia. This is the problem we always face in nearly every psychological and psychiatric study. Similar data have been reported by other investigators [64, 65].

The civilian population of Nagorno-Karabakh, which has survived military conflicts, blockade, and forced displacement, often experiences post-stress anxiety and depression reactions that do not always correspond to the classic symptoms of PTSD. The genesis of these reactions is in their living conditions in Nagorno-Karabakh and the forced displacement as a result of sudden military aggression. This indicates the need for context-specific studies and interventions tailored to the specifics of local conflicts. The external validity of our results is worth careful consideration. Although our study sample was rather large (*n*=733) and included individuals settled in different regions, several factors may limit generalizability. First, our study focused specifically on the Armenian FDPs from

Nagorno-Karabakh in the acute phase of displacement (during the first days after the forced displacement). The patterns of anxiety and depression that we have identified may be specific to this particular population, the context of displacement, and the time frame. Second, although the depression (PHQ-9) and anxiety (GAD-7) scales demonstrated good psychometric properties [63], these tools were not specifically validated for the Armenian population from Nagorno-Karabakh. Cultural factors can affect symptom expression and reporting, with a potential impact on the clinical interpretation of scores. Third, our sample happened to be opportunistic, given the crisis context, which could introduce a systematic selection bias: those who experienced the most severe psychological distress might be either more likely (in search of help) or less likely (due to avoidance or a sense of overload) to participate. Finally, the cross-sectional design covers only one point in the travel path. Longitudinal studies are needed to understand how symptoms of a mental disorder develop over time and to determine whether the prognostic relationships we have identified remain stable.

Despite these limitations, our results are consistent with broader studies on forced displacement and mental health, suggesting that although the specific prevalence rates may depend on the context, the identified risk factors (especially sex, age, relocation with or without family) may have wider applicability to other displaced populations experiencing similar trauma. Future studies should focus on the specific aspects of the manifestations of mental disorders in FDPs, the needs of different groups of the affected population, as well as the impact of social and biological factors on their mental state [66].

CONCLUSION

The predominant factor in the development of mental disorders among FDPs from Nagorno-Karabakh was forced displacement. Age was a significant predictor for depressive disorders, whereas anxiety disorders were more associated with the female sex and separation from family. However, the results of regression analysis showed that the studied variables explain only a small proportion of the variability of anxiety and depressive symptoms. This indicates the existence of other, more significant predictors, probably of a socio-psychological nature, which require further longitudinal study. The interpretation of the obtained data is limited by the methodological features of this study, i.e., the use of a single cross-sectional design and the application of psychometric tools without subsequent clinical examination.

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Information about the authors

***Samvel Grantovich Sukiasyan**, MD, PhD, DSc, Professor, Psychosocial Recovery Center; Professor of Applied Psychology Departament, Khachatur Abovyan Armenian State Pedagogical University; ORCID: 0000-0001-9813-2471, eLibrary SPIN-code: 7363-5237, Scopus Author ID: 6508317743, ResearcherID: W-7404-2018
E-mail: doc.sukiasyan@gmail.com

Armen Frunzik Soghoyan, MD, PhD, Head of Psychosocial Recovery Center; Associate professor, Yerevan State Medical University after Mkhitar Heratsi; ORCID: 0000-0001-9494-0404

Lilit Varazdatovna Baghdasaryan, PhD in Psychology, Associate professor, Coordinator of psychological services, Psychologist, Psychosocial Recovery Center; Associated professor, Department of Personality Psychology, Yerevan State University; President of "Ambra" Mental Wellbeing Center; ORCID: 0000-0002-7543-5901

Ani Kamoevna Grigoryan, Researcher, scientific research laboratory "Personality and Social Environment" of the Research Center Psychology, Yerevan State University; ORCID: 0000-0001-5453-2879

Lilit Gurgenovna Karapetyan, PhD in Psychology, Psychologist, Psychosocial Recovery Center; Associate professor, Acting head, Special Pedagogy and Psychology Department, Khachatur Abovyan Armenian State Pedagogical University; ORCID: 0000-0003-1245-9436

Karine Karlenovna Tataryan, MD, PhD, Associated professor, Head of Psychiatry Department, Yerevan State Medical University after Mkhitar Heratsi; Psychiatrist, Psychosocial Recovery Center; ORCID: 0009-0007-0196-7458

Grant Mikhailovich Avanesyan, Dr. Sci. (Psychology), Professor, Head of General Psychology Department, Yerevan State University; ORCID: 0000-0002-5987-7830

Vitya Benikovich Yaramishyan, PhD in Psychology, Associate professor, Department of General Psychology, Yerevan State University

Gayane Gamletovna Hayrapetyan, Psychologist, Lecturer, Goris State University; Head of the Goris branch of Psychosocial Recovery Center

Zarine Volodyaevna Harutyunyan, Psychologist, Kapan Medical Center; Head of the Kapan branch of the Psychosocial Recovery Center; President of the NGO "Resilient Syunik"; Lecturer of European University of Armenia Kapan Branch

Naira Yeremovna Bayatyan, Social worker, Psychosocial Recovery Center

Anna Ashotovna Barseghyan, Psychologist, "Ambra" Mental Wellbeing Center

Anna Razmikovna Badalyan, Psychologist, Psychosocial Recovery Center; Psychologist, International Committee of the Red Cross; Lecturer, Yerevan State College of Culture and Arts named after Charles Aznavour; ORCID: 0009-0000-5519-4824

Angela Surenovna Budoyan, Psychologist, Vardenis 24-hour specialized care center; Head of the Vardenis branch of Psychosocial Recovery Center

Hrachya Rafik Hovhannisyan, PhD in Psychology, Associate professor, Department of General Psychology, Yerevan State University

Artur David Tonoyan, Psychologist, National Center for Mental Health Care; CEO of the Armenian Psychoanalytic Association

Hrachya Avag Shaginyan, Psychologist, National Center for Mental Health Care, Armenian Psychoanalytic Association

Harutyun Vaganovich Simonyan, psychiatrist, National Center for Mental Health Care; Mkrtchyan Mental Care Clinic

Armenuhi Vladimirovna Avagyan, PhD, psychologist, Director of "Armav" Continuing Education Center; ORCID: 0009-0009-8803-9455

Vergine Stepanowna Yesayan, Psychologist, "Armav" Continuing Education Center; Special School No. 17 for children with musculoskeletal disorders; ORCID: 0009-0000-8681-191X

Taguhi Samvel Makaryan, Psychologist, "Armav" Continuing Education Center; ORCID: 0009-0003-9361-4545

*corresponding author

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