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RESEARCH ARTICLE

ATTITUDES AND PERCEPTIONS OF COVID-19 AMONG MIGRANTS AND REFUGEES LIVING IN CAMPS: A QUANTITATIVE STUDY

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Abstract

Background: The outbreak of the coronavirus (COVID-19) pandemic profoundly altered daily life worldwide. Both the virus itself and the preventive measures implemented to limit its transmission generated heightened levels of stress and fear. Refugees and migrants, owing to their inherent vulnerabilities, encountered additional challenges in coping with these circumstances.

Method and Material: The purpose of this paper is to investigate the attitudes and perceptions of the refugee population residing in shelter facilities in Northern Greece, regarding the Covid-19 infection and the impact of the infection on their mental health status and daily behavior patterns. The "Psychological and Behavioral Response to the Coronavirus (Covid-19) Pandemic" questionnaire was administrated to a random sample of 66 men and 54 women who were living in the Refugee-Migrant Center, in the suburbs of Thessaloniki during the period of March-April 2021.

Results: Most respondents reported adherence to hygiene measures (88%–100%). Non-asylum holders exhibited a greater psychological impact (73%), primarily due to anxiety and fear (90%). Compliance with hygiene measures was reported by 81% of those who had previously been ill, compared to 96% among those who had not contracted the disease.

Conclusions: This study identified significant effects at both psychological and behavioral levels. Heightened anxiety and fear influenced participants across the sample, leading many to avoid routine daily activities. The majority demonstrated adherence to government-mandated preventive measures. However, individuals who perceived the situation as less severe than portrayed exhibited lower levels of psychological impact compared to those with more pessimistic views.

Keywords: Covid-19, refugees, migration, mental health, anxiety, fear.

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INTRODUCTION

In December 2019, an outbreak of a severe and atypical respiratory illness was first reported in Wuhan, China. The outbreak rapidly spread within Wuhan and subsequently to other cities across the country. Within a week, a novel coronavirus strain was isolated and identified as the causative agent.[1] This virus was designated Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) due to its genetic and clinical similarities to SARS-CoV, which had caused significant mortality during 2002–2003. The disease associated with SARS-CoV-2 was subsequently named COVID-19.[2]

Since the onset of the pandemic, governments worldwide, guided by the World Health Organization (WHO), implemented preventive measures aimed at reducing the spread of COVID-19. Key measures included personal hygiene practices, mask use, physical distancing, and social isolation.[3] As the pandemic continued to generate both health-related and socioeconomic challenges, sustained research and vaccine development emerged as primary strategies to control the virus. A central concern of the scientific community was the development and distribution of effective vaccines to achieve immunization at the global level.[4]

The first confirmed case of COVID-19 in Greece was reported on 26 February 2020 in a woman returning to Thessaloniki from Italy. Subsequent cases were identified among individuals who had either traveled to Italy—where infection rates were particularly high at the time—or participated in a religious pilgrimage to Israel and Egypt. From the outset of the pandemic, the Ministry of Health, in collaboration with the Hellenic Police Headquarters, delivered daily briefings at 18:00 through mass media. These briefings featured epidemiologists who provided detailed explanations of the preventive measures adopted and presented updates on the national epidemiological situation.[5]

The outbreak of the pandemic, the rapid spread of the virus, and the large number of infected and quarantined patients with Covid-19 are bound to increase the mental health burden of the population. The concerns of individuals when experiencing a health crisis such as this pandemic are to a certain extent common. For example, fear for one's own health and the health of loved ones, potential death, lack of capability and inability to protect and care for one's family, as well as fear of social stigma in the case of illness, and finally, depression due to strict measures and isolation[6]

Research conducted in China in the early stages of the pandemic showed that the general population experiences anxiety, stress, and depression. The mental health of the Chinese population was affected by concerns about the death of loved ones, pre-existing illness, fear of contact with someone who is sick with Covid-19, inadequate information, loss of trust in medical personnel, and the use of masks. Conversely, individuals who felt that they were receiving adequate information about the evolution of the virus, had a sense of security and adhered to preventive measures appearing to have reduced levels of depression and stress.[7] It is noteworthy that individuals who experienced psychological impacts related to COVID-19 were affected by the intensity of media coverage and social networking platforms, as well as by the perception of being exposed to misinformation from these sources.[8]

Refugees and migrants share similar coping mechanisms with the general population; however, factors such as migratory status, limited access to healthcare services, social and economic inequalities, and violations of rights may place them in a particularly vulnerable position if they become ill.[9] Their health status is further influenced by a range of determinants, including legal documentation, degree of societal integration, educational background, and country of origin.[10,11,12]

Migration and mobile populations, in all their forms, represent major determinants of healthcare demand and supply within host countries. Armed conflicts, economic instability, and political or religious persecution are among the primary drivers compelling individuals to emigrate. In Greece, these factors contributed to a marked influx of migration, particularly from 2015 onward, with large numbers of refugees arriving with the intention of continuing their journey into Europe.[13] Migration may be voluntary or involuntary, depending on whether movement occurs by choice or coercion. It can also be classified by duration, distinguishing between temporary and permanent migration, as well as by social context, differentiating whether individuals migrate alone or within groups.[14]

With the increased influx of refugees and migrants since 2015,

identification centers, known as "hotspots," were established in Greece for the registration of people, initially on the islands and soon after in mainland Greece. Both the harsh living conditions in these hospitality centers and the epidemiological data of the countries of origin dictate the formation of a strategy for providing primary care and protecting the health of both migrants and the public.[15] There are three forms of accommodation for refugees and migrants. The first form refers to a space that can be used for the necessary purpose of housing applicants, until their request for international protection is examined, while the control is carried out by the border authorities or in general transit zones. The second form of accommodation refers to refugee and migrant reception centers, which may be either public or private buildings, but clearly appropriately structured to host the applicants and supervised by public or private non-profit organizations, or international organizations such as the International Organization for Migration and the High Commission. The third form refers to private homes, as well as apartments that have been offered for this purpose, as well as hotel units that are rented by public and private employers and non-governmental organizations.[16]

METHODOLOGY

The aim of this study was to identify the psychological and behavioral factors that have been affected by the Covid-19 pandemic in refugee and migrant populations.

The present study was approved by the ethics committee of the Ministry of Migration and Asylum. The sample was collected in its entirety from the Refugee-Migrant Center located in Diavata, a suburb of Thessaloniki, between the period of March and April 2021. The center's population was approximately 1100 individuals, with 640 being the total adult population. The predominant languages in the settlement were Arabic and Farsi. There were 56 beneficiaries who spoke other languages/dialects. However, there was limited availability of interpreters. Consequently, the questionnaire was translated only into these two languages. The questionnaire was translated into both Greek and English by certified English-speaking and Greek-speaking interpreters, respectively.

A pilot study was conducted with a sample of 20 participants, aimed at clarifying the questions, the accuracy of the translation and comprehension, due to the language restriction, the level of literacy (some participants did not know how to read), and the questionnaire's relatively recent release, meant that it had not been tested on a large sample size before. During the pilot application of the research, it was found that additional directives were needed to clarify some questions in the population whose mother tongue is Farsi. Therefore, during the distribution of the questionnaires, the directives deemed necessary were given along with the interpreter.

For the collection of the final sample, 120 questionnaires were distributed by the researcher himself to the adult population (sample percentage 19%) randomly, with the sole criterion of mother tongue. The expected error was between 7.5% and 10%.[17]

The questionnaires were distributed to participants through a door-to-door approach and subsequently collected after allowing sufficient time for completion. Confidentiality was strictly maintained, preserving the anonymity of the participants. During the distribution, the involvement of interpreters was requested to ensure the understanding of the purpose of the research and to clarify the observance of ethical and moral rules. Subsequently, consent for participation in the research was requested and it was explained that this did not constitute an obligation to submit the completed questionnaire. The sampling was strictly directed at the adult population with a willingness to cooperate, sufficient cognitive abilities, and at least basic reading and comprehension skills in their mother tongue.

A questionnaire was used for the research, which investigates the psychological and behavioral effects of the Covid-19 pandemic in the Pakistani population.[8] Permission for the use of the questionnaire was granted by the research team.

This is a structured self-assessment questionnaire consisting of 21 binary closed-type questions (yes/no) divided into two sections. The first 10 questions refer to the psychological changes of the participants, such as stress and fear for their own and their families' health, resulting from the spread of Covid-19. The remaining 11 questions focus on changes in their behavior, including avoiding various activities and increasing health measures.

Initially, an effort was made to group the questions and extract

factors using the method of exploratory factor analysis, as the original tool did not define subgroups. The quantitative indices were determined based on the percentages of "yes" that resulted from each factor's questions. In other words, for each factor, the answers of "yes" were totaled up and divided by the number of questions for each factor.

The exploratory factor analysis was implemented using the open-source programming language R and specifically the "PSYCH" package. The tetrachoric factor analysis is a special case of polychoric and is used for dichotomous data (0 or 1). After the definition of the factors, reliability analysis followed. The Juder-Richardson KR-21 index is used in the case where the questions are of equal difficulty, as in the present study (yes/no). The values range from 0 to 1. The closer they are to 1, the greater the reliability of the factor. However, it has been observed that the values of these two indices are smaller than the Cronbach's alpha. Thus, values above 0.5 are considered acceptable for reliability. Data was analyzed using SPSS v. 21. The correlations between the quantitative variables were calculated based on the Spearman coefficient. The differentiation tests of the quantitative variables from the categorical/dichotomized demographic characteristics were implemented using the Mann-Whitney criteria for variables with two categories and Kruskal-Wallis for more than two categories.[18] Independence checks of the quality variables were conducted using the Chi-squared test ($\chi 2$). In cases where the assumption of five observations per cell was violated, categories were consolidated. All tests were performed at a significance level of $\alpha=0.05$.

The factor analysis was applied separately for the two question groups: the psychological impact and the change in behavior due to Covid-19. Question 10 of the psychological factors "I feel the situation is not as bad as it is being portrayed." has a negative connotative content regarding anxiety, thus it was incorporated into the group as an inverted item. Upon applying the method of quadratic correlation and factor analysis, five factors emerged and due to the low factor loadings and the excessive number of factors compared to the number of questions, analysis was limited to two factors. The first 7 questions were classified into one factor, while the last 3 were not categorized. The KR-21 coefficient of the final question group was calculated to be 0.68, which is an acceptable level of reliability (Table 1).

During the analysis of the second part of the questionnaire relating to the behavioral impact, four factors emerged. As in the first part, a factor analysis was also conducted with two factors in this part. According to the analysis, the 11 questions of the behavioral factor were divided into groups Y1, Y2, Y3, Y4, Y5, Y7, Y8 with a reliability coefficient KR-21=0.64, and Y6, Y9, Y10, Y11 with KR-21=0.53. Although the reliability was deemed acceptable and all factor loads had satisfactory values, the variable Y6 was moved to the first group due to its semantic identification. The result was a significant improvement in the reliability coefficients, with the first group calculated at 0.67 and the second at 0.71 (Table 1).

RESULTS

The final sample consisted of 120 participants, of whom 55% (n=66) were male. The age of the participants had a mean of M=32.35 (SD=11.270), the median was 30 and the prevalent value was 24 years. The range of values ranges from 18 to 67 years.

Participants note percentages over 70% for most of the proposals that refer to the psychological impact of the Covid-19, specifically in terms of stress and fear. Higher percentages are observed regarding the health of family members rather than the individuals themselves. 82.5% respond that they feel stress when a family member leaves the house and 87.5% feel fear for the health of family members in general. 35% feel fear for their health even inside the house. Nevertheless, 72.5% believe that the situation is not as bad as it is being presented and 81.7% believe that false news through social media causes panic. Finally, 51.7% do not trust the management measures for the pandemic.

Regarding the behavioral changes of the sample, it appears that there is a strong restriction of social contacts (78.3%) and trips to medical facilities/hospitals (74.2%), places of worship (70%), and cancelled plans (80%). An increase in health measures is observed, such as more frequent hand washing (94.2%), use of disinfectant (86.7%), and use of protective masks (96.7%). Lower percentages report engaging in more extreme behaviors related to work or education, such as resignation (39.2%) and avoidance

(30.8%).

For the analysis of correlations between the defined factors Spearman's correlation coefficient was used, while for the binary (yes/no) qualitative variables, independence was tested through the chi-squared test. The two main factors considered to be affected by Covid-19, psychological and behavioral, show a statistically significant positive correlation of low power, meaning that a high effect on psychology brings about, respectively, an effect on behavior and vice versa. Within factors, the anxiety/fear subscale shows an almost perfect positive correlation with the overall psychological impact of the virus, and the activity avoidance subscale an almost perfect positive correlation with the behavioral impact of the virus. The hygiene rules subscale shows a low but statistically significant positive correlation with the behavioral effect. Change in psychology and increase in stress did not correlate with increase in hygiene measures. From the correlation matrix and the $\chi 2$ test (Table 3) it appears that the respondents' belief that fake news leaking through social media causes panic is positively correlated with mistrust of countermeasures.

DISCUSSION

A factor analysis was applied to the tool used. From this, a basic factor emerged at the psychological level, characterized by the feeling of stress and fear for individual and family health. Three questions were rejected from the factorization. Nevertheless, these questions were not excluded from the study but were examined individually. At the behavioral level, two factors emerged. The first is related to avoiding movements and activities and the second to hygiene measures. In this way, new quantitative indicators for determining the psychological and behavioral changes due to Covid-19 were calculated.

The analysis of correlations between indicators confirmed an almost perfect positive correlation between the subscale of the psychological factor "stress/fear" and the "total psychological impact" factor, which confirms that the psychological effect is determined almost exclusively by the predominance of stress and fear. The subscales of the effect on behavior show statistically significant positive correlations between the subscales and the total index. The "total behavioral impact" factor has an almost perfect positive correlation with the avoidance of activities and a much lower correlation with the intensification of hygiene measures. Psychological affect is positively correlated with behavioral affect. Therefore, changes in the psychology of refugees and immigrants bring corresponding changes in behavior towards the Covid-19 outbreak.

There is also a positive correlation between the perception that false news circulating on social networks caused panic and mistrust of measures to deal with the virus. Distrust in the measures had a significant effect on the "stress and fear" factor, leading to a change in "total psychological impact" of refugees and immigrants. There is a similar effect by fake news which was provided by the media. The ones who believe that the situation is not that bad as it appears have a more optimistic outlook on daily life and are not psychologically impacted as much as the rest of the population.

Hygienic measures seem to be followed in more than 90% of the entire sample. Because of that, it is difficult to differentiate from the characteristics of the population. Similar findings were reported in the UNHCR (2020) survey,[19] which demonstrated comparably high rates of compliance with preventive measures. Consistent results have also been observed in studies conducted in refugee centers in Ghana and Colombia.[20,21]

When investigating the effect of demographic characteristics, no gender differences were confirmed, neither in psychology nor in the attitude of the population examined. In similar study by the International Federation of Red Cross and Red Crescent Societies (IFRC) (2020)[22] that studies the impact of the disease on the daily life of refugees and migrants, it also appears that there is no difference in the stress management between men and women. However, there are higher rates of anxiety in women with children. In contrast to other studies, the findings revealed that a higher percentage of female refugees were significantly more likely to have suffered from severe psychological impact than their male counterparts.[12,23] However, a study conducted among Syrian refugees found that men were more adversely affected by the COVID-19 pandemic.[24]

Age was not found to be correlated with the psychological or behavioral impact of the virus on the target population. The opinions about countermeasures, the effect of social media and the evaluation of the current situation seem to be independent

of age as well. Although a study that took place in Ghana showed that compared to younger camped refugees, older camped refugees (40 years or older) were severely psychologically impacted by the COVID-19 pandemic.[20]

Similarly, the level of education did not appear to influence any of the factors under examination. The attitudes of refugees and migrants remained consistent regardless of their formal educational background. In contrast, the Apart Together Survey which studies the effect of Covid-19 on a refugee population that also resides in a hosting center for refugees and immigrants, shows that the level of education is correlated as a factor with receiving information from social networking media but also with following the hygiene measures.[25] Similarly, in refugee centers in Ghana, Uganda and Syrian refugees in Turkey, the educational level of the refugees, appears to have a significant impact on their psychological wellbeing.[23,24,26]

The marital status and the presence of children in the family are important causes of variation in the behavior of the refugee population. A statistically significant difference was observed, with married people and parents showing a more relaxed attitude than the rest. Apparently, they are the ones who have changed their behavior the least during the pandemic. For married people, this difference is found in the compliance with hygiene measures, while for parents in the limitation of their daily commutes. It seems that people with family responsibilities probably find it more difficult to avoid commuting for work and/or education purposes. The same was found from relevant research by UNHCR (2020) since a large percentage of the sample who have children continue to go to school as before. Even though a family has more increased needs than singles, married people have not increased their supplies of basic goods, in contrast to single people (with or without children) who experience more intensively the fear of product shortages. Findings from a similar survey conducted by the International Federation of Red Cross and Red Crescent Societies (IFRC) (2020) reinforce the results of this survey regarding the intensification of commodity purchases. The same was found in the research in Ghana.[20] In addition, people without a partner (single, divorced or/and widowed) are more careful with hygiene measures, especially in the systematic use of disinfectant in everyday life. On the other hand, refugee married men are more affected by the pandemic in Turkey.[24]

A significant factor in the impact of Covid-19 on the psychological factor is the health condition, as evaluated by the individuals themselves (Figure 1). People who report poor/very poor health have significantly higher fear and anxiety about the risk of exposure to the virus. Their anxiety extends to almost all aspects of their daily life, from visiting crowded places to being at home. A study by the Danish Refugee Council.[27] agrees that fear affects refugees, who live in hosting centers, to leave their homes and a large percentage of those with a burdened medical history seem to express indecision about visiting a medical facility. In our research, the above factors significantly challenge the adequacy of measures to address the virus. Conversely, those who describe their health as good/very good do not feel the fear of danger as intensely and show significantly greater confidence in the measures applied.

The first positive diagnosis of Covid-19 in the population has a profound impact on the psychological well-being of individuals, as well as on their daily routines and relationships with others. The most vulnerable groups, such as the elderly and those with pre-existing mental health problems, are at increased risk of developing serious mental health problems as a result of the epidemic. The economic impact of the epidemic, including job loss, income reduction, and uncertainty about the future, also exacerbates the psychological impact of the virus. In a research among refugee students, it was found that Syrian students who were not infected by the virus were more psychologically affected than the Jordanian ones.[28]

Study Limitations

The main limitation of this study was the language barrier between the researcher and the refugees and immigrants. The questionnaire was translated into Arabic and Farsi, due to a lack of suitable interpreters. It is noteworthy that there was a significant percentage of illiterate people in the population. Therefore, individuals who can read the available languages were selected, which may create bias towards the educational level of the population. Due to the limited environment, it is natural for the research to involve individuals either from the same family or from

the immediate environment. These individuals are expected to adopt similar opinions, have similar emotional responses and take similar actions, which increases the probability of bias.

CONCLUSIONS

In summary, this study examined in depth the psychological and behavioral impact of COVID-19 on refugees residing in a shelter. Findings indicate that refugees and migrants who experienced psychological effects related to COVID-19 also exhibited corresponding behavioral changes. Heightened anxiety and fear influenced both domains, leading many participants to avoid routine daily activities. Although the sample demonstrated strong adherence to government-mandated preventive measures, no correlation was observed between compliance and the extent of psychological or behavioral impact.

However, exposure to misinformation fostered distrust in preventive measures and contributed to psychological distress. Notably, refugees and migrants who perceived the situation as less severe than presented exhibited significantly lower psychological impact compared to those with more pessimistic perceptions.

Competing interests

The authors have no competing interests to declare.

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ANNEX

TABLE 1. Final Factor Analysis

	Factors	Variable	Type	KR-21
Section I	Total Psychological Impact	X1 – X10*	Quantitative	0.61
	Stress and Fear about Health	X1 – X7	Quantitative	0.68
	Mistrust of countermeasures	X8	Binary	-
	Fake news causes panic	X9	Binary	-
	Believe the Situation is not as Bad as Presented	X10	Binary	-
Section II	Total Behavioral Impact	Y1 – Y11	Quantitative	0.64
	Avoidance of Movement/Activities	Y1 – Y8	Quantitative	0.67
	Health Measures	Y9 – Y11	Quantitative	0.71

TABLE 2. Frequencies of demographic characteristics

DEMOGRAPHIC CHARACTERISTICS *N=120*	**TOTAL**	
	Frequencies N	**Relative frequencies f%**
Sex		
Males	66	55.0%
Females	54	45.0%
Marital status		
Unmarried	36	30.0%
Married	70	58.3%
Divorced	5	4.2%
Widower/widow	9	7.5%
Children		
Yes	42	35.0%
No	78	65.0%
Country of origin		
Afghanistan	63	52.5%
Syria	39	32.5%
Iran	8	6.7%
Iraq	4	3.3%
Morocco	3	2.5%
Other	3	2.5%
Mother tongue		
Arabic	48	40.0%
Farsi	72	60.0%
Education		
< 9 years	62	51.7%
> 9 years	40	33.3%
University	18	15.0%
Asylum status		
No documents	3	2.5%
Temporary documents	104	86.7%
Asylum holder – permanent documents	13	10.8%

TABLE 3. Correlations between factors

	Correlations				
Spearman's rho	F1 Total Psychological Impact	F11 Stress/Fear	F2 Total Behavioral Impact	F21 Avoidance of Activities	F22 Health Regulations
F1 Total Psychological Impact	1				
F11 Stress/Fear	0.932** (>0.001)	1			
F2 Total Behavioral Impact	0.265** (0.005)	0.314** (>0.001)	1		
F21 Avoidance of Activities	0.240**	0.294**	0.971**	1	
	0.008	0.001	0.000		
F22 Health Regulations	0.149	0.161	0.377**	0.182*	1
	0.105	0.079	0.000	0.047	

*Correlation is significant at the 0.01 level (2-tailed).***

*Correlation is significant at the 0.05 level (2-tailed).**

TABLE 4. Chi-squared test for the qualitive variables

	X8	X9	X10
X8 Mistrust of countermeasures			
X9 Fake news causes panic	4.250[a] 0.039		
X10 Believe the Situation is not as Bad as Presented	0.636 0.425	0.252 0.616	

FIGURE 1: 1 Differences of opinion on the management of Covid-19 in relation to health status