

Manuscript Title: *Safety, Health and Trauma among newly arrived refugees in Greece*

Abstract

This study identifies the factors that affect safety, health and trauma among refugees and asylum-seekers newly arrived and accommodated in Greece. The data of this study was collected from the REHEAL (Refugees' Healing) project, a population-based survey conducted in six Greek refugee camps during the summer of 2016. We specified two binary logistic regression models, one for safety and a second for health, as well as a multiple linear regression model for the trauma score. Safety, health and trauma among refugees seem to be attributed to both pre and post-displacement factors. The analysis shows that the mental and physiological well-being of refugees and asylum seekers is strongly affected by post-displacement factors and, more specifically, by exposure to stressors in host countries, such as poor living conditions, limited access to health care services and uncertainty about the future.

Ethics statement

The study was reviewed and approved by the Board of Directors of the National Centre for Social Research (EKKE) in accordance with the Rules of Procedure laid down in O.G.G. (Official Government Gazette of the Hellenic Republic) 219/1995, by which the Board of Directors is made responsible for all aspects of research, ethical academic and scientific.

The survey was conducted in accordance with the International Association of Sociology Code of Ethics and the codes, practices and legal obligations followed by the EKKE during the implementation of empirical social surveys. The EKKE is a public body.

In terms of approval for the overall survey, a special permit to enter the camps was granted to the National Centre of Social Research from the Ministry of Migration following a formal request (the correspondence is in Greek, but an English translation can be provided upon request).

All research processes adhered fully to the Greek legislation on Personal Data Protection, meaning that anonymity was ensured at every stage of the survey. The survey was conducted by experienced interviewers and researchers from the EKKE in collaboration with certified interpreters (Arabic and Farsi) provided by the NGO “Metadrasi” in Greece for the study. Personal information was kept confidential. Prior to completing the questionnaire, participants were informed about the aim of the survey.

Introduction

During 2015, unprecedented numbers of asylum-seekers arrived in Europe (UNHCR 2017). Almost all of those who survived their dangerous journeys across land and sea had been subject to very difficult circumstances for months, if not years. These experiences have taken an enormous toll on their physical and mental health, while the living conditions they have endured subsequent to their arrival in Europe have also been dire. The health consequences of the ordeals suffered by asylum-seekers struggling to get to Europe have scarcely been studied; thus, relevant data are urgently needed in order to properly assess the health needs of this vulnerable group and to design relevant health policies and programs. The REHEAL study carried out among asylum-seekers in Greece represents a first step in this direction.

Of the over one million refugees who arrived in Europe in 2015, approximately 850,000 entered through Greece. The vast majority did not stay in Greece but continued their journey to reach their preferred destinations in northern Europe (Turner 2015). In autumn 2015, however, the situation changed dramatically as several countries along the ‘Balkan route’ leading from Greece to northern Europe began to close their borders. The EU-Turkey agreement concluded in March 2016 severely restricted flows from Turkey to Greece as well as the access of asylum seekers already in Greece to other European countries.

As a result, tens of thousands of asylum-seekers were stranded in Greece, causing them great frustration, as they realized that, due to their slightly later arrival as compared to previous waves of asylum seekers, they would not be able to fulfill their expectations for reaching their desired destinations, typically Germany, Sweden or the UK. It is against this backdrop of dashed hopes, frustration, and uncertainty about the future that the REHEAL survey was conducted in six refugee reception camps and structures across Greece between July and September 2016. The difficult conditions experienced by most refugees and asylum-seekers in these structures were

expected to further jeopardize their physical and mental health and contribute to their sense of despair (Crepet *et al.* 2017; Silove *et al.* 1997).

Empirical studies reveal the high levels of chronic psychiatric disorders and disability in refugee populations, emphasizing the importance of early recognition and treatment (Mollica *et al.* 2001 Hollifield *et al.* 2002). It is also found that displaced populations living in refugee camps have higher rates of post-traumatic stress disorder (PTSD) than those that are permanently resettled in another country (Steel *et al.* 2009; Hollifield *et al.* 2016). Post migration factors, such as delayed asylum application process, poor living conditions and limited social support may have an even stronger association with psychological distress than pre-migration traumatic experiences (Silove *et al.* 1997; Carswell *et al.* 2011; Schweitzer *et al.* 2006; Laban *et al.* 2006). Tackling feelings of unsafety might contribute to better general health status and facilitate the healing process of post-traumatic experiences (Burgess 2004; Center for Substance Abuse Treatment 2014).

The existing evidence reveals that refugees and asylum-seeker are at high risk of developing mental illness and evaluate their health as poor. To date, few studies have dealt with the new waves of refugees in Europe after the massive inflows of 2015. As Hollifield *et al.* (2002) point out, further empirical research is needed to better define the events associated with adverse health status. To the best of our knowledge, this is the first empirical study, focusing on the main risk factors of post-displacement recovery and healing process i.e. trauma, health and safety with the aim to identify their common and differentiated predictors.

Method

Data sources and procedures

The data of this study was collected from the REHEAL (Refugees' Healing) project a survey among refugees residing in official camps in Greece created at an emergency to accommodate the

thousands of people arrived at an unprecedented scale during the summer and autumn of 2015 (Stathopoulou 2018). The goals of the survey were to investigate the reasons for fleeing homeland, the potential traumatic and discriminative experiences during fleeing and the health needs of the refugee population in relation to their living and reception conditions.

Collection of data at the refugee camps was carried out through the use of structured self-completed questionnaires under the supervision of experienced researchers of the National Centre for Social Research and certified interpreters of Arabic and Farsi. The questionnaire was also available in English.

The designed sample size was 360 individuals and the achieved sample size was 367 individuals belonging to the target refugee population. The recruitment of respondents took place at the following camps in Greece after a special permit was given to the National Centre for Social Research by the Ministry of Migration Policy: Eleonas, Diavata, Veroia, Skaramangas, Schisto and Samos island. The number of interviews conducted in each camp was as follows: Eleonas 67, Diavata 82, Veroia 43, Skaramangas 64, Schisto 65 and Samos island 46 interviews.

The sample selection was based on the approach of potential respondents at the camps, using an interview step of three. According to this design, after every third lodging a single person from a family was approached and asked to fill in the questionnaire. The interpreters accompanied the researchers in the field, in order to facilitate the self-completion procedure for respondents needing clarifications.

Due to the special nature of the survey population, there was no possibility of telephone back checks for quality control purposes. Therefore, an initial inspection of the completeness of the filled-in questionnaires was carried out in situ at each camp, by the interviewers and supervisors upon getting them back. Where necessary and in order to minimize the missing responses, the

respondents were asked, with the help of the interpreters, for clarifications and answers in case of incomplete questionnaires.

The sample size of each location ranged between 43 (Veria) and 82 (Diavata) individuals. The population residing in each camp was not stable. The estimated total number of refugees residing in each camp was provided in situ by the competent authorities. A comparison of the gender distribution among the respondents showed that men constituted the majority of the population in all the camps visited, with percentages ranging between 58.2% (39/67) for Eleonas and 72.3% (47/65) for Schisto camp. As for the age distribution the highest mean value was observed in Veria, 36.67 ± 11.47 , and the lowest in Samos, 34.09 ± 13.17 , while the mean value for the total sample was 35.25 ± 12.38 , with values ranging between 14 and 97 years old.

Outcomes

The data was analysed in terms of three key predictors of post-displacement recovery (Mollica 2011; Mollica *et al.* 2014; Mollica 2016; Steel *et al.* 1999): a) safety ('How safe do you feel in your current location?'), b) self-perceptions of health ('At the moment, how would you say is your health overall?') and c) experienced trauma ('The following are symptoms that people sometimes have after experiencing hurtful or terrifying events in their lives. Please read each one carefully and decide how much the symptoms bothered you in the past week'), according to the shortened 16-item version of the Part IV of the Harvard Trauma Questionnaire (HTQ) of the Harvard Program in Refugee Trauma (Hollifield *et al.* 2002).

Feelings of safety were initially measured in a four-point scale (1=very, 2=somewhat, 3= not very safe and 4=not at all safe), but for the purposes of the statistical methodology applied, a binary variable was used to indicate those feeling safe (1=very safe or somewhat safe) and unsafe (0=not very safe or not safe at all). Self-rated health was also recoded from a five-point scale (1=very

good, 2=good, 3=fair, 4=bad, 5=very bad) to a binary variable; healthy (1=very good, good or fair) and unhealthy (0=bad or very bad).

Overall, 52.1% of the respondents were feeling ‘not very safe’ or ‘not safe at all’ and 47.9% were feeling ‘very’ or ‘somewhat safe’. In addition, 38.8% of the respondents evaluated their health as “bad or very bad” and 61.2% as ‘very good or fair’.

Trauma was measured by a frequency scale (1=not at all, 2=a little, 3=quite a bit, 4= extremely) of the 16 symptoms. The percentages of those responses are presented in Table 1. The symptoms were summed up on a total trauma score with mean value equal to 2.77 (SD 0.90). The most prevalent symptom reported as extremely bothering was the ‘feeling as if you don’t have a future’ (57.4%).

Table 1 about here

Statistical analysis

The internal consistency of the experienced trauma was evaluated through the Cronbach’s alpha and was found equal to 0.92, while a potential deletion of any of these symptoms, did not lead to a higher value. We specified two binary logistic regression models, one for safety and a second for health, as well as a multiple linear regression model for the trauma score. The models were adjusted using the pooled dataset of the population surveyed. The limitations in the achieved sample size did not allow any further disaggregated analysis. The odds ratios (ORs) are reported for the interpretation of the results of fitting the binary logistic regression models, while the parameter estimates are reported as resulted of fitting multiple linear regression. In both cases, the statistical significance of the resulting estimated values was evaluated through the p-values of the

corresponding statistical testing using as a threshold the 0.05 value. The assessment of multicollinearity among meaningful factors was judged according to the significance of their correlation coefficients and the final set of covariates was defined in line with these results. The models were adjusted for demographic characteristics and other factors that were associated with refugees' experiences both in their country of origin and Greece. The resulting parameter estimates are presented in Table 2.

Most of these variables have been recoded into binary ones for the clearer interpretation of results. Score of loss was computed as a sum of the 9 items regarding respondents' assessment of different types of loss because of fleeing; loss of personal, children's, spouse or partner's or other family members' and close friends' health, loss of adequate income, savings or emergency money, loss of feeling valuable to others, feeling that one has control over his/her life and loss of intimacy with one or more family members.

Table 2 about here

No weights have been used either in the structure of the dataset or in the analysis. Missing values were particularly high for the trauma score; 61 out of 367 respondents (16.62%), low for safety, 18 out of 367 (4.9%), and similarly low for health, 19 of out 367 (5.2%). Non imputation techniques were used for the missing values and hence list wise deletion of missing data was performed for all three models. As a result, 28.6% (n=105) of the available data were excluded from the model on safety, 31.9% (n=117) from the health model, while 16.6% (n=61) observations with at least one missing value in the determinants of the regression model, were excluded from the trauma model.

Results

The binary logistic regression analysis performed for the model on safety, used the following variables: gender, being Syrian born, self-rated health, experienced discrimination or unfair treatment, being examined by a doctor after arriving in Greece and experience of forced evacuation in the country of origin.

An OR <1 means that any increase in the corresponding determinant results in a decrease in the odds of the feelings of safety (outcome occurrence), whereas an OR>1 means that any increase in the determinant leads to an increase in the odds of the feelings of safety. Statistically significant effects were found for being Syrian born and being examined by a doctor after arriving in Greece. In particular, being born in Syria was associated with a 71% increase in the odds of feeling safe, while being examined by a doctor after arriving in Greece was associated with 78% increase in the odds of feeling safe.

Table 3 about here

In the second logistic regression, safety, trauma score, ill health without medical care, loss of personal health because of fleeing, back or neck pain while travelling or displaced in refugee's country, breathing problems before leaving home and months since arrival to Greece were used as determinants of self-rated health status. The feeling of safety, the total score of trauma and the loss of personal health have a significant impact on self-rated health. Very bad or bad health increased by 110% the odds of being reported by those who were feeling unsafe than by those who were feeling safe, while a one-unit increase in trauma score resulted in a 63% increase in the odds of poor self-evaluation of health status. In addition, loss of personal health because of fleeing, increased by 84% the odds of reporting having bad and very bad health.

Table 4 about here

As for the multiple linear regression model regarding trauma, the following variables have been used: being Afghan born, self-rated health, experienced discrimination or unfair treatment before leaving home, total score of loss and being accompanied by children. Self-rated health and being accompanied by children were identified as statistically significant determinants, with good health resulting in a decrease of trauma score and the presence of accompanying children resulting in an increase of that score.

Table 5 about here

Discussion

In this study, we investigated safety, health and trauma through different sets of determinants that combined demographic and psychological factors, relevant to refugees' experiences both in their country of origin and in Greece. Even though the majority of the refugees reported being in good or very good health, this study reveals the high levels of exposure to extreme trauma and the lack of a sense of safety in newly arrived refugees in Greece.

Meeting with a Greek physician in the refugee camps was extremely beneficial to establishing a sense of safety. However, it seems that feeling safe is often a matter of both physical and physiological safety. Our analyses demonstrate that safety, trauma and loss of personal health because of fleeing home had statistically significant effects on the self-rated health status. More specifically, those who were feeling unsafe and those who evaluated the loss of personal health as most important, because of fleeing were found more likely to evaluate their overall health as poor. Similarly, those who scored higher with respect to traumatic experiences were more likely

to rate their health as poor. These results are consistent with previous evidence on the prevalence of physiological morbidity and depression in refugees and its association with adverse health outcomes (Hollifield *et al.* 2016; Hollifield *et al.* 2002; Mollica *et al.* 2001).

Refugees are often traumatised by pre-displacement events. However, as Papadopoulos (2006) notes, ‘trauma (in its negative meaning) is not the only outcome in these situations. There is a huge range of responses, varying from the most pathological and disabling to the most positive, resilient and inspiring’ (Papadopoulos 2006). Mollica (2016) argues that ‘self-healing occurs at the psychological level when the mind is able to construct new meaning out of violence/trauma’. Our analysis has examined the pre and post displacement factors that have an effect on recovery. As several studies suggest, post-displacement factors may have a cumulative effect on prior trauma often leading to a “polytrauma” (Bogic *et al.* 2015; Hollifield *et al.* 2002; Gorst-Unsworth and Goldenberg 1998).

Self-rated health and being accompanied by children emerged as statistically significant determinants of trauma; in particular, we found that poor health and being accompanied by children leads to an increase in the trauma score. These results along with the association yielded between health and safety provides confirmation of the interplay between pre- and post-migration factors on psychological well-being (Carswell *et al.* 2011). The country of birth and access to medical services in the host country emerged as important determinants of safety. Syrians were found to be healthier and less traumatized compared to Afghanis. As Goldsmith (2008) mentions, ‘refugees may obtain physical security in the host country, but they may not immediately experience psychological security, a sense of being settled and safe’. Uncertainty about the future in host countries and barriers to accessing social support and health care services may further hinder refugees’ recovery (De Vito *et al.* 2015). In some cases ‘neither refugees themselves nor their clinicians are fully aware of the exact entitlements refugees have to access different types of health care’ (Giacco and Priebe 2017).

Limitations

This study has several limitations. First, due to the specific emergency conditions that characterized the first phase of refugees' accommodation in Greece, it was not feasible to design the survey according to an area probability sampling. As the accommodation capacity in each camp was changing due to new arrivals, the refugee target population was elusive characterized by high mobility and instability. Thus, time location sampling was implemented according to the recommendations of disaster research (Pennel *et al.* 2014; Mneimneh *et al.* 2014).

Second, prior to the fieldwork period a pre-registration asylum process (9/06 - 5/07/2016) had been initiated by the Greek Ministry of Migration, posing considerable constraints in the administration time provided by the camp authorities for the survey and the availability of certified interpreters. The sample was, thus, designed according to these limitations and no pilot testing was possible.

Third, despite the meticulous design of the questionnaire the cultural diversity of the population surveyed might have an effect on the comprehension of specific questions and the non-response rate.

Fourth, although the aim of the survey was clearly stated at the beginning of the fieldwork some respondents might be prone to misconceive its purpose and answer according to a presumably "correct" way, i.e rate their health as good or very good aspiring in a quicker asylum process (Pennel *et al.* 2014).

Conclusion

This study indicates that the post-migration physical and psychological well-being of refugees and asylum seekers is strongly associated to the policy effectiveness and the institutional capacity of the host country, in terms of providing adequate living conditions and integration prospects, as

well as to the overall European strategy regarding refugee flows and settlement. Humanitarian responses to the growing needs of refugee populations across Europe and beyond have to take into account refugees' traumatic experiences (Spiegel 2017). Early assessment of the health and mental health needs of refugees is expected to minimize future disability and chronic distress among refugees to the benefit of public health and facilitate their integration in host countries by containing the growing intolerance towards them (Tsiamis *et al.* 2016; Mollica *et al.* 2002; Mollica *et al.* 2001; Lindert *et al.* 2016; The Lancet 2015; Horton 2017; Polatin 2017).

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Tables

Table 1: Descriptive statistics for Trauma symptoms

Bothersome symptoms	Not at all n (%)	A little n (%)	Quite a bit n (%)	Extremely n (%)
Recurrent thoughts/memories of the most hurtful/terrifying events	37 (15.3%)	42(17.4%)	45(18.6%)	118(48.8%)
Feeling as though the event is happening again	62 (31.0%)	54(27.0%)	31(15.5%)	53(26.5%)
Recurrent nightmares	54(25.7%)	60(28.6%)	32(15.2%)	64(30.5%)
Feeling detached or withdrawn from people	62(29.7%)	50(23.9%)	25(12.0%)	72(34.4%)
Unable to feel emotions	65(35.7%)	52(28.6%)	39(21.4%)	26(14.3%)
Feeling jumpy, easily startled	47(21.0%)	37(16.5%)	41(18.3%)	99(44.2%)
Difficulty concentrating	44(20.7%)	53(24.9%)	38(17.8%)	78(36.6%)
Trouble sleeping	47(20.4%)	51(22.2%)	41(17.8%)	91(39.6%)
Feeling on guard	58(28.7%)	34(16.8%)	42(20.8%)	68(33.7%)
Feeling irritable or having outbursts of anger	61(27.9%)	48(21.9%)	33(15.1%)	77(35.2%)
Avoiding activities that remind you of the traumatic/hurtful event	51(25.4%)	43(21.4%)	36(17.9%)	71(35.9%)
Inability to remember parts of the most hurtful/traumatic events	76(39.9%)	28(14.4%)	43(22.1%)	48(24.6%)
Less interest in daily activities	54(26.1%)	58(28.0%)	37(17.9%)	58(28.0%)
Feeling as if you don't have a future	45(17.1%)	36(13.7%)	31(11.8%)	151(57.4%)
Avoiding thoughts/feelings associated with the traumatic/hurtful events	50(25.4%)	47(23.9%)	39(19.8%)	61(31.0%)
Sudden emotional or physical reaction when reminded of most hurtful/traumatic events	56(25.3%)	50(22.6%)	32(14.5%)	83(37.6%)

Table 2: Descriptive statistics of the predictor variables for safety, health and trauma

Variables	Mean (SD)	n (%)
Gender		
Female		135 (36.8%)
Male		232 (63.2%)
Syrian born		
No		183 (49.9%)
Yes		184 (50.1%)
Born in Afghanistan		
No		248 (67.6%)
Yes		119 (32.4%)
Discrimination or unfair treatment since travelling or arriving to Greece*		
Rarely/never		225 (61.3%)
All/ most/ some of the time		142 (38.7%)
Examined by a doctor after arriving in Greece		
No		191 (57.7%)
Yes		140 (42.3%)
Experienced forced evacuation		
No		192 (64.6%)
Yes		105 (35.4%)
Experience of ill health without medical care		
No		133 (44.0%)
Yes		169 (56.0%)
Loss of personal health because of fleeing*		
Not at all/ to a small/ to a moderate degree		271 (73.8%)
To a considerable/ great degree		96 (26.2%)
Health problems - Back/Neck pain - While travelling/displaced in own country		
No		344 (93.7%)
Yes		23 (6.3%)
Health problems - Breathing - Before leaving home		
No		342 (93.2%)
Yes		25 (6.8%)
Discrimination - Before leaving home		
Never/ rarely		51 (23.6%)
All/ most/ some of the time		165 (76.4%)
Accompanying children		
No		117 (31.9%)
Yes		250 (68.1%)
Months since arrival to Greece	13.23 (25.25)	
Score of loss	0.95 (1.33)	

* Missing values were considered as absence of the characteristic.

Table 3: Association of predictor variables with feelings of safety

	OR (95%CI)	p*
(Constant)	0.18	0.000
Gender	1.69(0.98 - 2.91)	0.059
Born in Syria	1.71 (1.00 - 2.93)	0.049*
Self-rated health	1.67 (0.98 - 2.83)	0.058
Discrimination or unfair treatment since travelling or arriving to Greece	1.51 (0.89 - 2.57)	0.124
Examined by a doctor after arriving in Greece	1.78 (1.05 - 3.01)	0.031*
Experienced forced evacuation	1.61 (0.92 - 2.80)	0.095

* p>0.05

Table 4: Association of predictor variables with self-rated health status

	OR (95%CI)	p*
(Constant)	0.07	.000
Feeling of safety	2.10 (1.21 - 3.65)	.008*
Total score of trauma	1.63(1.18 - 2.26)	.003*
Experienced ill health without medical care	1.64 (0.94 - 2.87)	.080
Loss of personal health because of fleeing	1.84(1.02 - 3.29)	.041*
Health problems - Back/Neck pain - While travelling/displaced in own country	3.03(0.99 - 9.30)	.053
Health problems - Breathing - Before leaving home	2.38(0.88 - 6.48)	.089
Months since arrival to Greece	0.99(0.97 - 1.01)	.194

* p>0.05

Table 5: Association of predictor variables with trauma

	B	p*
(Constant)	2.312	.000*
Born in Afghanistan	0.195	.117
Self-rated health	-0.314	.012*
Discrimination or unfair treatment before leaving home	0.251	.079
Total score of loss	0.068	.113
Accompanying children	0.352	.009*

* $p > 0.05$