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Changes in health among Syrian refugees along their migration trajectories from Lebanon to Norway: a prospective cohort study

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ABSTRACT

Objectives: Conflict-driven displacement is an indisputable social determinant of health. Yet, data on changes in health along the migration trajectories of refugees are scarce. This study aims to assess the longitudinal changes in somatic and mental health and use of medication among Syrian refugees relocating from a conflict-near transit setting in the Middle East to a resettlement setting in Europe. Further, we examine different health status trajectories and factors that predict health in the early postmigration period.

Study design: This is a prospective cohort study.

Methods: Survey data were collected during 2017–2018 among adult Syrian refugees in Lebanon selected for quota resettlement and at follow-up approximately one year after resettlement in Norway. Our primary outcomes were non-communicable disease (NCD), chronic impairment, chronic pain, anxiety/depression, post-traumatic stress symptoms, and daily use of drugs. We estimated longitudinal changes in prevalence proportions using generalized estimating equations and evaluated effect modification of health outcomes.

Results: Altogether, 353 Syrians participated. NCDs declined (12%–9%), while the prevalence of chronic impairment, chronic pain, and use of drugs remained nearly unchanged (29%–28%, 30%–28%, and 20%–18%) between baseline and follow-up. Conversely, mental health outcomes improved (anxiety/depression 33%–11%, post-traumatic stress disorder 5%–2%). Effect modifiers for improvement over time included younger age, short length of stay, and non-legal status in the transit country before resettlement in Europe.

Conclusions: We find that mental health outcomes improve from a conflict-near transit setting in Lebanon to an early resettlement setting in Norway, while somatic health outcomes remain stable. Temporal changes in health among moving populations warrant attention, and long-term changes need further scrutiny.

Introduction

The world has never seen as many forcibly displaced individuals as now, with over 70 million people currently on the move due to persecution and violent conflict.[1] Along with the high numbers of refugees and asylum seekers worldwide over the last years, there have been profound concerns among receiving countries as to how national welfare systems, including the healthcare systems, should accommodate the influx of large groups of individuals.

Forced migration is an indisputable predictor of health, and the health of refugees will affect their possibility to integrate in a new country.[2] Along their migration trajectories, refugees strive to mitigate the effects of war and atrocities, the challenges of the transit period, such as deprivation and uncertainty, as well as the difficulties in the postmigration phase, frequently including

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language barriers and financial constraints. In joint, these factors have a powerful potential to harm the health and well-being of people forced to flee.[3] On the other side, protective factors accompanying the migration journey may include social support, renewed hope for the future, recaptured experience of safety, and improved socio-economic standard upon resettlement.

The empirical health advantage of migrants compared with natives has been explained by the 'healthy migrant hypothesis' suggesting a selection into migration favouring overall healthy individuals in the countries of origin.[4] Importantly, it is uncertain whether this is true for forcibly displaced migrants, such as refugees. Various studies have found increasing burden of disease among refugees by length of stay.[5,6] The 'exhausted migrant theory' provides support for expecting deteriorating health outcomes among migrants over time.[7] This 'exhaustion' is considered multifaceted based on stressors related to adaptation as well as socio-economic factors and discrimination.

Less is known about the health in the early postmigration phase, which could be referred to as the 'honeymoon phase' due to the initial euphoria seen after resettlement in a new country.[8] It remains unsettled whether this theory of migrant health applies to forced migration. Few studies hitherto, if any, have traced health outcomes among refugees as they cross borders and shift from the transit phase to the early postmigration phase, and to our knowledge none have included somatic health outcomes. To shed light on the relationship between the honeymoon phase and the exhausted migrant theory, there is a need to address the temporal changes in both somatic and mental health in unselected samples of refugees also incorporating the transit phase.

The objective of this study is to assess changes in somatic and mental health and use of medication among Syrian refugees from the transit phase to one year into the postmigration period. Furthermore, we will investigate different health status trajectories and effect modifiers of changes in health along the migration path.

Methods

Study design, setting, and data collection

This is a prospective cohort study of Syrian refugees under protection by the United Nations High Commissioner for Refugees in Lebanon, with follow-up after resettlement in Norway. The study is a part of the CHART study, collecting survey data in Lebanon during the period August 2017 to April 2018 and at follow-up approximately one year after the participants had arrived as resettlement refugees in Norway.

At baseline we invited all Syrian refugees aged 16 and above participating in the mandatory pretravel course offered by the International Organization for Migration to self-complete a questionnaire in Arabic. Project staff assisted those with low literacy level, and healthcare workers were available to respond to potential signs of retraumatization.

For the follow-up survey, contact details of participants were obtained from The Norwegian Directorate of Integration and Diversity and public refugee offices in the municipalities of resettlement after consent from the participants. Arabic-speaking study staff contacted the participants by phone, and the study questionnaire was completed as a structured phone interview. The most common reasons for loss-to-follow-up included not wishing to participate further and not reachable after a minimum of three phone calls (Supplementary Fig. 1).

The study was approved by the Regional Committee for Medical and Health Research Ethics of South East Norway (ref. no. 2017/377) and by the International Organization for Migration. Informed written consent was obtained from all respondents prior to study enrolment and repeated orally at follow-up. All data were stored de-identified on a safe server.

Measures

The primary outcomes in this study are changes in somatic health, mental health, and use of medication between the transit phase and the early postmigration phase.

Demographic variables recorded included age, gender, country of birth, mother tongue, ethnicity, marital status, children, and education. To identify the exposures related to the migration process, our research team sought to map various aspects of the respondent's migration journey: length of stay in Lebanon, stay in other transit countries, time in transit countries, solo-migration, and residence permit in transit country. The Single General Trauma Item was used to measure the exposure to traumatic events relating to the experience of forced migration.[9]

Questions on health conditions and chronic impairment were obtained from The Nord-Trøndelag Health Study (HUNT).[10] These questions enquire whether respondents suffer or have suffered from a range of health conditions including non-communicable diseases (NCDs), asking: Have you had or do you have any of the following (conditions), with possible replies 'yes', 'no', or 'unfamiliar term'. Our NCD variable encompasses cardiovascular diseases, chronic respiratory diseases, diabetes, and cancer. Chronic impairment was defined as mental or somatic health problems or injury impairing daily life and lasting at least one year. Chronic pain was defined as experiencing physical pain for at least six months, and this single item has been validated as a standardized measure of chronic pain in population studies.[11]

Anxiety/depression and post-traumatic stress symptoms were assessed by the validated instruments Hopkins Symptom Checklist (HSCL-10)[12] and the Harvard Trauma Questionnaire (HTQ).[13] These instruments have frequently been used in surveys among refugees and have exhibited satisfactory psychometric properties among Arabic-speakers. The HSCL-10 item asks 10 questions to rate the extent to which specific symptoms of anxiety and depression have distressed the respondent during the last week on a four-point Likert scale, and we report mean item scores (range 1–4). Similarly, the HTQ asks 16 questions to examine post-traumatic stress symptoms using the same time frame and response scale with total score calculated as mean item score (range 1–4). The literature suggests a mean HSCL-10 score of 1·85 as threshold for predicting a clinically relevant anxiety or depression and a mean HTQ score of 2·5 as threshold for post-traumatic stress disorder (PTSD). In this study, we adhere to these cut-offs.

Use of medication was assessed by questions from the Oslo Health Study.[14] From a list of commonly used drugs, including drugs for chronic conditions, painkillers, and psychotropic drugs, respondents self-reported the frequency of their use (daily, weekly, less than weekly, or not at all) during the last 4 weeks.

The questionnaire was translated and culturally adapted after standardized procedures,[15] before piloting among a group of six Syrian refugees in a Norwegian asylum centre with subsequent minor adjustments.

Statistical analyses

We described the data using crude prevalence proportions and medians with interquartile range (IQR). Differences in demographic variables between responders and non-responders were evaluated by X2-tests and Mann–Whitney U-tests to identify selection bias in the follow-up data.

The changes in prevalence between baseline and follow-up were evaluated using generalized estimating equations (GEE). This

method accounts for dependency between repeated measures in the same individuals. Data in long format with two observations per individual were analysed with logit-link and binomial distribution specified, and timepoint as a binary covariate with baseline data as the reference. Results are presented as odds ratios (OR) with confidence intervals (CI) obtained using robust standard errors. The HSCL-10 item, the HTQ-item, and the number of drugs taken daily were additionally analysed as continuous outcomes in GEE models with identity link function and Gaussian distribution specified. Missing values were handled with listwise deletion in all regression models.

Further, we constructed trajectory variables and calculated the proportions experiencing positive, negative, or no change in outcomes. These results are presented graphically as a Sankey-diagram.

Effect modifications by age, gender, and various migration experiences on change over time for the outcomes were investigated by stratification of effect measures and through introducing interaction terms in the GEE regression models.

All tests were two sided with the level of statistical significance set to 0·05. Analyses were conducted in STATA IC 16·0 (StataCorp LLC, Texas, USA). We adhere to the STROBE statements for cohort studies when reporting this study.

Results

At baseline, 506 individuals were recruited. Overall, 464 (92% of respondents) were confirmed settled in Norway, and 353 of them (76%) participated in the follow-up (Supplementary Fig. 1).

Our cohort of 353 individuals had a balanced gender ratio and a median age of 34 (IQR 27–41) years at baseline (Table 1). The proportion reporting exposure to trauma was 40%. Bivariate association analyses between the cohort and the loss-to-follow-up group did not reveal substantial differences indicative of selection bias (Supplementary Table 1).

The prevalence of NCDs declined from the transit to the early resettlement phase (12%–9%, OR 0·68 (0·46–1·00) (Fig. 1, Table 2). The reduction was greatest for asthma, reported by 15 individuals at baseline, but only by 6 individuals at follow-up. Other somatic health outcomes, including chronic pain and chronic impairment, remained at the same level (29%–28%, OR 0·97 [0·73–1·29] and 30%–28%, OR 0.92 [0·68–1·23], respectively). Conversely, mental health outcomes showed significant improvement from the transit to the resettlement situation, with a marked drop in the prevalence of anxiety/depression (33%–11%, OR 0·24 [0·17–0·35]) and PTSD (5%–2%, OR 0·44 [0·21–0·95]). There were no clear changes in use of drugs (20%–18%, OR 0·88 [0·65–1·20]). Comparison between analysing the HSCL-10 item, the HTQ-item, and the number of drugs taken daily as categorical or continuous outcomes did not reveal divergences.

Table 1
Sociodemographic and migration-related factors at baseline, n=353.

		n/median	%/IQR
Sociodemographic factors			
Gender	Women	181	51
	Men	171	49
Age (years)		34	27–41
Mother tongue	Arabic	335	95
	Kurmanji	15	4
Marital status	Married	265	75
	Cohabiting with partner	260	98
Number of children		3	2–4
Education (years)		8	6–10
Migration and trauma-related factors			
Time since flight from Syria at baseline (years)		5	4–6
Time since arrival in Lebanon at baseline (years)		5	4–5
Been in other transit country before Lebanon		20	6
Time in transit countries	Up to 2 years	8	38
	>2 years	13	62
No residence permit in Lebanon at baseline		242	69
Migrating alone to Lebanon		55	16
Exposed to potentially traumatic event(s)		135	40

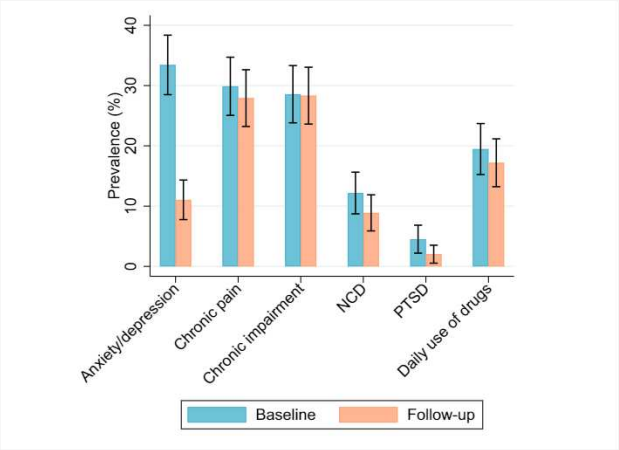

Fig. 1. Change in prevalence of somatic and mental health outcomes between baseline and follow-up. NCD = Non-communicable diseases, PTSD = Post-traumatic stress disorder.

Trajectories of prevalence of main outcomes are shown in Fig. 2. Most of the refugees did not report NCDs, chronic pain, chronic impairment, or mental health problems neither at baseline nor at follow-up. There were 12 (4%) new reports of NCD at follow-up, while 25 (7%) reported NCDs at baseline but not later. A similar pattern was seen for chronic impairment and chronic pain, where up to 15–17% of respondents were new reporters of this complaint at follow-up or conversely reported this complaint in baseline data only. For anxiety/depression only 16 (5%) acquired these health problems, while 96 (27%) improved from them, and for PTSD three times as many had an ameliorating trajectory compared with a deteriorating trajectory. Among respondents, 71% did not use drugs daily neither at baseline nor at follow-up.

As shown in Table 3, participants aged <40 had a larger improvement in anxiety/depression in the early postmigration period compared with older participants. Further, few years of stay in Lebanon was associated with stronger improvement in mental health compared to six years stay or more. Lastly, those lacking residence permit in Lebanon showed a greater reduction in PTSD symptoms after resettlement in Norway compared with those who had a residence permit while in Lebanon. Change in the main outcomes did not differ by gender or other migration-related experiences.

Discussion

Our study provides new insight into the temporal changes in health among forcibly displaced individuals as they cross borders. Overall, we find that most Syrian refugees in both transit settings and early resettlement settings do not report health complaints. We observe a slight decline in the prevalence of NCDs, while the prevalence proportions of chronic impairment and chronic pain remain high along the migration trajectories of respondents. Noticeably, mental health parameters improve significantly among Syrian refugees between a transit phase and an early resettlement phase. Hence, this study provides partial support for the term 'honeymoon phase' as a description of the early resettlement phase.

Table 2
Change in dichotomous outcomes from baseline to follow-up, n = 353.

	Baseline		Follow-up		Change	
	n	%	n	%	OR	95% CI
Non-communicable disease	42	12	30	9	0.68	0.46, 1.00
Chronic impairment	100	29	99	28	0.97	0.73, 1.29
Chronic pain	104	30	98	28	0.92	0.68, 1.23
Anxiety/depression (HSCL-10 cut-off 1.85)	118	33	38	11	0.24	0.17, 0.35
PTSD (HTQ cut-off 2.5)	14	5	7	2	0.44	0.21, 0.95
Daily use of drugs	66	20	60	18	0.88	0.65, 1.20

Changes in prevalence between baseline and follow-up using generalized estimating equations. OR = odds ratio; CI = confidence interval; HSCL-10 = Hopkins Symptoms Checklist 10; PTSD = post-traumatic stress disorder; HTQ = Harvard Trauma Questionnaire.

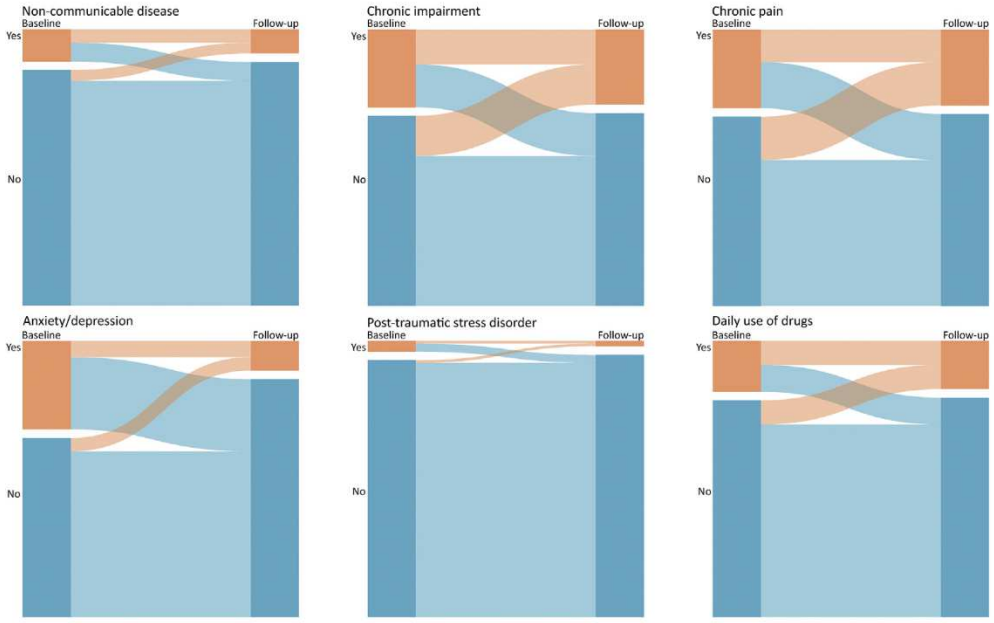

Fig. 2. Trajectories of prevalence proportions of somatic and mental health outcomes from baseline to follow-up.

While some claim that the 'honeymoon phase' only lasts the first few months,[8] the health of refugees in this migration stage is poorly examined. The existing literature is almost exclusively centred on mental health, show varying courses of outcomes, and there is broad variation in terms of time frames examined.[16–21]

The prevalence of NCDs showed an unexpected modest decrease from baseline to follow-up, and the decrease was most profound for asthma. We believe this finding may have several explanations raging from response bias, self-diagnosing under difficult circumstances, or different diagnostic traditions. Others

Table 3
Effect modifiers of change in dichotomous outcomes from baseline (T1) to follow-up (T2), n = 353.

	Non-communicable disease			Chronic impairment			Chronic pain			Anxiety/depression			PTSD		
	OR	95% CI	p	OR	95% CI	P	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
By age															
<40 years	0.32	(0.15, 0.72)		1.20	(0.84, 1.73)		0.94	(0.65, 1.37)		0.17	(0.10, 0.27)		0.32	(0.11, 0.90)	
≥40 years	1.07	(0.66, 1.72)		0.62	(0.37, 1.05)		0.85	(0.49, 1.47)		0.50	(0.27, 0.91)		0.89	(0.26, 3.01)	
Interaction test			0.01			0.04			0.76			0.01			0.21
By time since arrival															
0–5 years	0.67	(0.41, 1.10)		1.02	(0.73, 1.43)		0.90	(0.63, 1.30)		0.16	(0.09, 0.26)		0.23	(0.08, 0.67)	
≥6 years	0.89	(0.46, 1.71)		0.84	(0.44, 1.60)		0.88	(0.46, 1.67)		0.39	(0.19, 0.83)		1.48	(0.33, 6.60)	
Interaction test			0.51			0.59			0.95			0.05			0.05
By residence permit in Lebanon, n (%)															
No	0.72	(0.46, 1.13)		1.01	(0.72, 1.42)		0.90	(0.64, 1.27)		0.38	(0.20, 0.71)		0.33	(0.14, 0.81)	
Yes	0.50	(0.23, 1.10)		0.89	(0.51, 1.55)		0.93	(0.51, 1.70)		0.19	(0.12, 0.30)		2.09	(0.39, 11.16)	
Interaction test			0.43			0.69			0.88			0.09			0.05

Effect modification of changes in prevalence between baseline (T1) and follow-up (T2) using generalized estimating equations with interaction terms. OR = odds ratio; CI = confidence interval; PTSD = post-traumatic stress disorder.

have described a decrease in NCDs during migration and an increase after arrival in Europe but evidence of longitudinal changes relied upon cross-sectional data,[22] and dynamics of NCDs during migration deserve further scrutiny.

We find that almost one-third report chronic pain or long-term chronic impairments, and these levels remain stable between baseline and follow-up. Studies concerning chronic pain in refugees are usually confined to selected groups such as torture survivors,[23,24] and we have not been able to identify any peer-reviewed literature reporting prevalence of chronic impairments in unselected refugee populations, although some include impairment in their NCD definitions. Findings from Australia indicate stabilisation of poor self-rated general health across the first three years of resettlement,[21] and it might not be plausible to expect alterations in physical health until many years of exposure to migration-related stressors in line with the 'exhausted migrant' theory.

Mental health outcomes, both anxiety/depression and PTSD, drop markedly between our two measure points. We believe our finding is connected to the relief of resettlement and renewed optimism for the future. Only few studies have investigated temporal changes in mental health morbidity in cohorts of forcibly displaces individuals. While some found persisting or increasing levels of mental health problems over the first one to two years after resettlement,[16,18,19] others found decrease in mental ill health at one year.[17,20] For all these studies, the baseline data were collected after arrival to host country; thus, none compare the early postmigration phase with the transit phase.

In our cohort, one in five uses drugs for NCDs, psychotropics, or painkillers daily. While some studies refer self-reported unmet needs of medication among Syrian refugees,[25] few have looked at the prevalence of use of drugs. The number reporting daily drug use among our respondents did not change significantly between initial assessment and follow-up. However, the investigation into trajectories revealed that around 1 in 10 used drugs at baseline but not at follow-up and conversely, another tenth did not use drugs at baseline but used drugs at follow-up. Thus, the reasons for taking medication as well as the barriers to access medicines should be scrutinised further.

Stratified analyses pointed out three factors predicting increased improvement in mental health outcomes after resettlement. Firstly, younger age was associated with increased improvement in mental health in the early postmigration period. This finding is in line with findings among refugees elsewhere.[17,21] While the young might be more adaptive to fluctuating circumstances, those with higher age may suffer a more pervasive loss of beloved ones, belongings, status, and culture. Secondly, few years of stay in Lebanon was associated with increased improvement in anxiety, depression, and PTSD symptoms compared with many years of stay in transit settings. We believe that the length of time under temporary and uncertain conditions will represent an extra burden affecting life also after resettlement in a European country. Lastly, those lacking residence permit in Lebanon showed more progress in PTSD symptoms after resettlement with legal residency in Norway compared with those who also had a residence permit while in Lebanon. Thus, it is plausible to think that the relief of legal permission to stay in a country reinforces the trajectory of improving mental health.[26]

Limitations of study

Some important limitations of this study should be noted. Firstly, the effects of migration-related stressors may manifest many years after the initial exposure. A more comprehensive understanding of the associations between forced displacement and health requires follow-up for decades. However, these aspirations were beyond the purpose of this study.

Secondly, the demographic pattern of our cohort reflects the Norwegian authorities' official resettlement policy that explicitly gives priority to families. Females might therefore be overrepresented in our sample compared with the gender distribution of Syrian immigrants in Norway in general. The frequency of exposure to traumatic events reported by the Syrians in this study seems to be below levels among Syrian refugees elsewhere.[27] We have no full explanation for this finding, but most of our respondents seem to have fled the ongoing atrocities in first stages of the war.

Lastly, this study relies on self-reported symptoms and complaints, which are not verified by clinical data or diagnostic interviews. Additionally, we deliberately chose to change the mode of data collection between baseline and follow-up. The shift from assisted self-completion of questionnaires to completion by telephone was a trade-off considered beneficial to optimize response rates and thereby limit selection bias. Similar studies among Syrian migrants have proved it extremely difficult to recruit by mail, and others have also changed the mode of data collection in follow-up of refugees.[21]

Despite these methodologically concerns, we believe our study provides an important contribution to the knowledge gap regarding the health of forcibly displaced. Using a prospective design to trace health as refugees cross borders, our study enables direct comparison of findings in transit and the early postmigration phase.

We find that most of the Syrian refugees in our study do not report health complaints. Concerns among politicians and stewards of the healthcare systems in receiving countries, albeit not baseless, might be exaggerated in terms of needs for and cost of healthcare services to the newcomers.

In the transition from a perimigration to a postmigration period, there seems to be reason to expect an initial improvement in mental health parameters.

In the early postmigration phase, the focus should be directed toward detecting particularly vulnerable subgroups. Our study has identified older age and length of stay in transit as risk factors of less progress in mental health from the transit to the early resettlement phase.

While our data seem to support the notion 'honeymoon phase', at least for mental health, many studies demonstrate development of the 'exhausted migrant' over time. Thus, there might be reason to expect deteriorating health outcomes in the later postmigration period. Healthcare systems should be designed to identify and accommodate those who develop mental ill health after the initial period of resettlement.

Conclusion

We found that mental health outcomes improved among Syrian refugees along their migration trajectories from a transit phase in Lebanon to an early resettlement phase in Norway, while somatic health outcomes remained nearly unchanged. Public healthcare planners and practitioners should acknowledge longitudinal changes in health among forcibly displaced individuals and incorporate this concern into the planning of healthcare services for newly arrived refugees and asylum seekers.

Author statements

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this study. The views expressed in this publication are those of the authors and not necessarily those of our collaborators.

Ethical approval

The study was approved by the Regional Committee for Medical and Health Research Ethics of South East Norway (ref. no. 2017/377) and by the International Organization for Migration.

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Competing interests

The authors declare no competing interests.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2020.07.016.

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