

Changes in health among Syrian refugees

A prospective study along the migration trajectories from the Middle East to Northern Europe



Elisabeth Marie Strømme

Thesis for the degree of Philosophiae Doctor (PhD)
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Street art by ArtByBliss outside the Rafto Foundation Human Rights House in Bergen, Norway. Photo: Elisabeth Marie Strømme. With permission from the artist.

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1 Abbreviations and definitions

1.1 Abbreviations

ARR:	Adjusted risk ratio
CHART:	Changing Health and health care needs Along the Syrian Refugees' Trajectories to Norway
CI:	Confidence interval
DAG:	Directed acyclic graph
GEE:	Generalized estimating equation
HSCL-10:	Hopkins Symptom Checklist 10
HTQ:	Harvard Trauma Questionnaire
HUBRO:	The Oslo Health Study
HUNT:	The Nord-Trøndelag Health Study
IMDi:	The Directorate of Integration and Diversity
IOM:	International Organization for Migration
IQR:	Interquartile range
NCD:	Non-communicable disease
OR:	Odds ratio
PTSD:	Post-traumatic stress disorder
SD:	Standard deviation
UNHCR:	The United Nations High Commissioner for Refugees

1.2 Definitions

In my discussion of forced migration and health I lean on definitions by the 1951 Refugee Convention and its 1967 Protocol^{1, 2} and the United Nations High Commissioner for Refugees (UNHCR)³.

Forcibly displaced person

A person displaced as a result of persecution, conflict, violence, human rights violations, or events seriously disturbing public order. The definition includes asylum seekers, refugees, and internally displaced people.

Asylum seeker

An individual who is seeking international protection and whose claim has not yet been finally decided by the country in which the claim is submitted.

Refugee

The universal definition of a refugee is contained in the 1951 Refugee Convention:

A person who, owing to a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his (sic) nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.

In this thesis the term *refugee* is used both for Syrian asylum seekers and refugees as >99% of Syrian asylum applicants to Norway had their need for international protection recognized and were granted residency during 2017-2018.⁴ In states that are not party to the 1951 Refugee Convention and its 1967 Protocol, such as Lebanon, the UNHCR conduct refugee status determination. However, many Syrians living in Lebanon are not registered with the UNHCR,⁵ and I use the term *Syrian refugee* regardless of registration status.

2 Scientific environment

This research was conducted while I was working as a general practitioner and received a recruitment grant from the Norwegian Medical Association (the Norwegian GP's Research Committee) (2017) and later as a PhD student at the Department of Global Public Health and Primary Care, Faculty of Medicine, University of Bergen, Norway (2017-2021). I was affiliated with the Health promotion, migration, and health (HEMIX) research group and my PhD project was a part of the Changing Health and health care needs Along the Syrian Refugees' Trajectories to Norway (CHART) study. As a visiting PhD student, I had a short stay with Professor Krista M. Perreira, Department of Social Medicine, University of North Carolina at Chapel Hill, US (2019).

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My interest in refugee health was evoked summer 2010 when I, as a medical student, could not find a hospital job and ended up doing research among Palestinian refugees for The United Nations Relief and Works Agency (UNRWA) in Amman, Jordan. It has been a privilege to pursue this engagement and spend 3.5 years researching health among Syrian refugees. This PhD journey is far from a solo project but has been possible with support from and close collaboration with a range of wonderful persons. I want to use this opportunity to express my sincere gratitude.

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As the far youngest in my family, I have always been under the attentive care of my mother and two sisters. Thank you for always supporting and believing in me. Thanks to near friends for your encouragement and interest, but most of all for PhD

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Elisabeth Marie Strømme



Birds flying. Damascus, summer 2010. Photo: Elisabeth Marie Strømme.

4 Abstract

4.1 Abstract in English

Background: In the wake of unprecedented numbers of individuals forced to flee due to persecution, conflict, and other human rights violations over the past decade, health implications of forced displacement have become an essential part of the public health agenda for the 21st century. Yet, current knowledge about health among people displaced across borders has important shortcomings. Firstly, the health of displaced individuals in the transit and the early post-migration stage is poorly examined and longitudinal data is scarce. Secondly, the primary focus of research literature on health among people living in displacement has been concentrated around mental health, largely overlooking somatic health aspects.

Objective: The main objective of this PhD project was to describe and analyse the temporal changes in somatic and mental health outcomes and their association with migration related exposures among Syrian refugees transferring from a conflict-near transit phase in the Middle East to an early resettlement phase in Northern Europe.

Methods: This study relies on survey data collected among Syrian refugees in Lebanon and Norway in a combined cross-sectional and longitudinal prospective design. The study is part of the ‘*Changing Health and health care needs Along the Syrian Refugees’ Trajectories to Norway*’ (CHART) project. Syrian refugees were recruited in connection with mandatory educational activities 1) in the transit phase in Lebanon among individuals selected for quota resettlement to Norway (population A) and 2) in the early resettlement phase in Norway (population B). Participants in Lebanon (population A) were followed prospectively and re-surveyed approximately one year after they had been resettled in 134 different municipalities throughout Norway. Primary outcomes were self-assessed somatic health status (including non-communicable diseases, chronic impairment, and chronic pain), mental health (including symptoms of anxiety, depression, and post-traumatic stress disorder (PTSD)) and use of medication. We investigated the prevalence proportions of main outcomes and their cross-sectional associations with migration related exposures (paper I). Further, we assessed change in

prevalence proportions between baseline and follow-up and effect modifiers of change over time (paper II). Lastly, we examined temporal changes in associations between pain, mental health, and migration related exposures (paper III).

Results: In total, 506 Syrians were recruited in Lebanon (population A) and 321 in Norway (population B). Among responders recruited in Lebanon and confirmed resettled in Norway 353 out of 464 (76%) participated in the follow-up. Both in Lebanon and Norway headache was the most prevalent health problem reported, followed by musculoskeletal complaints. Of those with chronic conditions few used relevant medication on a regular basis. Migrating without family members and exposure to refugee related traumatic events were associated with symptoms of anxiety/depression and PTSD, and the latter also with chronic pain (paper I). We found low levels of non-communicable disease at both timepoints (12% to 9%). Somatic complaints such as chronic pain and chronic impairments remained nearly unchanged between the two timepoints (29% to 28% and 30% to 28%, respectively), while mental health outcomes were found to ameliorate, with rates of anxiety/depression dropping from 33% to 11% and PTSD from 5% to 2%. Factors predicting increased improvement in mental health from baseline to follow-up included young age, few years of stay and non-legal status in transit settings (paper II). Reporting symptoms of anxiety/depression at baseline was a statistically significant predictor of chronic pain at follow-up. Most refugees recovered from mental health problems from the transit to the early resettlement phase, but a small group displayed persisting health problems in which chronic pain and mental health problems were interrelated and associated with a range of post-migration stressors. At both timepoints one in four of those with chronic pain used analgesics regularly, whereas none with mental health problems used antidepressants (paper III).

Conclusion: While this thesis affirms mental health problems as an important health concern among refugees, chronic pain is lifted forward as a common challenge with relevance both for wellbeing and integration. The improvement in mental health over our one-year observation period echoes the postulated *honeymoon effect* in the initial phase after resettlement. Further, this thesis confirms the inherent health risk of trauma experiences, yet highlight that post-migratory exposures, like experiences of poor

economy, social relations, and access to relevant information, deserve more attention as important determinants of health among refugees. Receiving countries should intensify efforts to alleviate the burden of post-migratory stressors. Health system responses towards forcibly displaced populations should prevent discontinuity of care for chronic conditions and acknowledge the interrelations between chronic pain and mental health. Therapy interventions towards pain may be a promising way to approach co-morbid mental health disorders. Timing of general health assessments of newly resettled refugees should be tailored to capture both initial needs for continuity of care as well as health problems that may emerge with length of stay. Future research should elongate observation time and evaluate possible interventions both within health promotion, disease prevention and treatment of common conditions among persons displaced across borders.

4.2 Abstract in Arabic

الملخص

لمحة عامة: في أعقاب إجبار أعداد غير مسبوقة من الأفراد على الفرار بسبب الاضطهاد والنزاع وانتهاكات أخرى لحقوق الإنسان على مدى العقد الماضي، أصبحت الآثار الصحية للنزوح القسري جزءاً أساسياً من أجندة الصحة العامة للقرن الحادي والعشرين. ومع ذلك، فإن المعرفة الحالية حول الصحة بين النازحين عبر الحدود، بها أوجه قصور مهمة. أولاً، يتم فحص صحة الأفراد النازحين عبر الحدود ومرحلة ما بعد الهجرة المبكرة بشكل سيء، وهناك ندرة في البيانات الطولية. وثانياً، كان التركيز الأساسي للمواد البحثية حول الصحة بين الأشخاص الذين يعيشون في نزوح، ينصب على الصحة العقلية، حيث جرى تجاهل جوانب الصحة الجسدية إلى حد كبير.

الهدف: الهدف الرئيسي لمشروع الدكتوراه هذا هو وصف وتحليل الثغرات الزمنية في نتائج الصحة الجسدية والعقلية وارتباطها بالتعرض للمخاطر المتعلقة بالهجرة بين اللاجئين السوريين الذين ينتقلون من مرحلة الاقتراب من الصراع إلى مرحلة إعادة التوطين المبكرة في شمال أوروبا.

المنهجية: تعتمد هذه الدراسة على بيانات المسح التي جُمعت بين اللاجئين السوريين في لبنان والنرويج في تصميم مستقبلي مقطعي وطولي مشترك. الدراسة هي جزء من مشروع "التغيير الصحي واحتياجات الرعاية الصحية للاجئين السوريين" المسارات إلى النرويج" (مخطط) المشروع. جرى استقطاب السوريين فيما يتعلق بالأنشطة التعليمية الإلزامية (1) في مرحلة العبور في لبنان بين الأفراد الذين تم اختيارهم لإعادة التوطين بالحصص في النرويج (السكان أ) و(2) في مرحلة إعادة التوطين المبكرة في النرويج (السكان ب). تمت متابعة المشاركين في لبنان (أ) مستقبلياً وأعيد مسحهم بعد عام تقريباً من إعادة توطينهم في 134 بلدية مختلفة في جميع أنحاء النرويج. كانت النتائج الأولية هي الحالة الصحية الجسدية ذاتية التقييم (بما في ذلك الأمراض غير المعدية والضعف المزمن والألم المزمن)، والصحة العقلية (بما في ذلك أعراض القلق والاكتئاب واضطراب ما بعد الصدمة (بي تي إس دي))، وتناول الأدوية. لقد بحثنا في نسب انتشار النتائج الرئيسية وارتباطاتها المقطعة مع التعرض للمخاطر المرتبطة بالهجرة (الورقة 1). إضافة لذلك، قمنا بتقييم التغيير في نسب الانتشار بين الخط الأساسي ومعدلات المتابعة، وتأثير التغيير بمرور الوقت (الورقة 2). وأخيراً، قمنا بفحص التغييرات الزمنية في الارتباط بين الألم والصحة العقلية والتعرض للمخاطر المتعلقة بالهجرة (الورقة 3).

النتائج: في المجموع، جرى استقطاب 506 من السوريين في لبنان (السكان أ) و321 في النرويج (السكان ب). شارك 353 من أصل 464 (76%) من بين المستجيبين الذين تم استقطابهم في لبنان وتأكيد إعادة توطينهم في النرويج. كان الصداق في كل من لبنان والنرويج هو المشكلة الصحية الأكثر انتشاراً، تليه الشكوى من مشاكل العضلات والعظام. من بين أولئك الذين يعانون من أمراض مزمنة، تناول قليل منهم الأدوية ذات الصلة بشكل منتظم. الهجرة دون أفراد العائلة والتعرض للأحداث المؤلمة المتعلقة باللاجئين، ارتبطت بأعراض القلق/الاكتئاب واضطراب ما بعد الصدمة، والأخير أيضاً مع الألم المزمن (الورقة 1). وجدنا مستويات منخفضة من الأمراض غير المعدية في كلتا النقطتين الزمنيتين (12% إلى 9%). ظلت الشكاوى من المشاكل الجسدية كالآلم المزمن والإعاقات المزمنة دون تغيير تقريباً بين النقطتين الزمنيتين (29% إلى 28%، و 30% إلى 28%، على التوالي)، بينما تبين أن نتائج الصحة العقلية تتحسن مع انخفاض معدلات القلق/الاكتئاب من 33% إلى 11%، واضطراب ما بعد الصدمة من 5% إلى 2%. تضمنت العوامل التي تنبأت بتحسّن متزايد في الصحة النفسية من الخط الأساسي إلى المتابعة متضمنة صغر السن، وسنوات قليلة من الإقامة والوضع غير القانوني في أماكن العبور (الورقة 2). كان الإبلاغ عن أعراض القلق/الاكتئاب في الأساس مؤشراً ذا دلالة إحصائية للآلم المزمن في المتابعة. تعافى معظم اللاجئين من مشاكل الصحة العقلية من العبور إلى المرحلة المبكرة لإعادة التوطين، لكن فئة صغيرة أظهرت مشاكل صحية مستمرة حيث كان الآلم المزمن ومشاكل الصحة العقلية مترابطة ومتعلقة بمجموعة من ضغوط ما بعد الهجرة. في كلتا النقطتين الزمنيتين، تناول واحد من كل أربعة أشخاص ممن يعانون من الآلم المزمن مسكنات بانتظام، في حين لم يتناول أي من الذين يعانون من مشاكل الصحة العقلية مضادات للاكتئاب (الورقة 3).

الخلاصة: بينما تؤكد هذه الأطروحة أن مشاكل الصحة العقلية هي مصدر قلق صحي مهم بين اللاجئين، فإن الآلم المزمن يتم النهوض به مستقبلاً باعتباره تحدياً مشتركاً له صلة بالرفاهية والاندماج. إن التحسن في الصحة العقلية خلال فترة مراقبة مدتها عام واحد، يعكس تأثير شهر العسل المفترض في المرحلة الأولية بعد إعادة التوطين. علاوة على ذلك، تؤكد هذه الأطروحة المخاطر الصحية المتأصلة في تجارب الصدمات، لكنها تسلط الضوء على أن حالات التعرض لمخاطر ما بعد الهجرة، كتجارب الوضع الاقتصادي الرديء والعلاقات الاجتماعية والوصول إلى المعلومات المهمة، تستحق المزيد من الاهتمام كمحددات مهمة للصحة بين اللاجئين. وينبغي للبلدان المستقبلة أن تكثف جهودها للتخفيف من عبئ ضغوط ما بعد الهجرة. استجابة النظام الصحي لحاجات السكان النازحين قسرياً، ينبغي أن تمنع الانقطاع في الرعاية للحالات المزمنة والصحة العقلية. قد تكون الإجراءات المتخذة لمعالجة الآلم طريقة واعدة للتعامل مع اضطرابات الصحة العقلية المرضية. ويجب أن يكون توقيت التقييمات الصحية العامة للاجئين

الذين أعيد توطينهم حديثاً مصمماً لتلبية الاحتياجات الأولية لاستمرار الرعاية وكذلك المشكلات الصحية التي قد تظهر مع طول فترة الإقامة. كما ينبغي أن يطيل البحث المستقبلي وقت المراقبة وتقييم التدخلات الممكنة في كل من تعزيز الصحة والوقاية من الأمراض وعلاج الحالات الشائعة بين الأشخاص النازحين عبر الحدود.

4.3 Abstract in Norwegian

Sammendrag

Bakgrunn: I løpet av det siste tiåret har et rekordhøyt antall individer blitt drevet på flukt på grunn av forfølgelse, konflikt og andre menneskerettighetsbrudd, og helsekonsekvenser av flukt har inntatt en viktig plass på den globale folkehelseagendaen. Likevel har dagens kunnskapsgrunnlag om helse blant mennesker som må flykte over landegrenser betydelige begrensninger. For det første er helsen til mennesker i transittsituasjoner og i tidlig post-migrasjonsfase i liten grad undersøkt, og det er gjennomført få longitudinelle studier. For det andre har primærfokuset i forskningslitteraturen som omhandler helse hos flyktninger vært sentrert rundt mental helse, og i langt mindre grad studert somatiske helseaspekter.

Mål: Hovedmålet i dette doktorgradsprosjektet var å beskrive og analysere endringer i somatiske og mentale helseutfall og deres assosiasjoner med migrasjonsrelaterte eksponeringer blant syriske flyktninger som migrerer fra en konflikt-nær transittfase i Midtøsten til en tidlig bosettingsfase i Nord-Europa.

Metode: Dette er en kombinert tverrsnitts- og longitudinell prospektiv studie basert på data fra en spørreundersøkelse blant syriske flyktninger i Libanon og Norge. Studien er en del av '*Changing Health and health care needs Along the Syrian Refugees' Trajectories to Norway*' (CHART) prosjektet. Syriske flyktninger ble rekruttert i forbindelse med obligatoriske undervisningsaktiviteter 1) i transittfasen i Libanon blant individer med tilbud om gjenbosetting i Norge (studiepopulasjon A) og 2) i tidlig bosettingsfase i Norge (studiepopulasjon B). Deltagere i Libanon (studiepopulasjon A) ble fulgt opp prospektivt og invitert til å delta på nytt cirka ett år etter at de hadde blitt bosatt i 134 ulike norske kommuner. Primærutfallene var selv-evaluert somatisk helse (inkludert kroniske sykdommer, funksjonsnedsettelse og kroniske smerter), mental helse (inkludert symptomer på angst, depresjon og post-traumatisk stress lidelse (PTSD)) og bruk av medisiner. Vi undersøkte prevalensen av primærutfallene og deres assosiasjoner med migrasjonsrelaterte eksponeringer ved rekruttering (artikkel 1). Videre studerte vi hvordan prevalensene endret seg over tid mellom rekrutterings- og

oppfølgingstidspunktet samt mulige modererende faktorer for longitudinelle endringer (artikkel 2). Til sist undersøkte vi endring i assosiasjonene mellom smerter, mental helse og migrasjonsrelaterte eksponeringer over tid (artikkel 3).

Resultater: Totalt 506 syrere ble rekruttert i Libanon (studiepopulasjon A) og 321 i Norge (studiepopulasjon B). Blant respondentene som var rekruttert i Libanon og seinere bekreftet bosatt i Norge deltok 353 av 464 (76%) i oppfølgingsstudien. Både i Libanon og Norge var hodepine den hyppigst rapporterte helseplagen, etterfulgt av muskel- og skjelettplager. Blant dem med kroniske sykdommer var det få som brukte relevant medikasjon på fast basis. Å migrere uten familiemedlemmer og å være utsatt for traumatiske erfaringer var assosiert med symptomer på angst/depresjon og PTSD, og sistnevnte også med kroniske smerter (artikkel 1). Vi fant lave nivåer av kroniske sykdommer ved begge undersøkelsestidspunktene (12% til 9%). Somatiske plager, som kroniske smerter og funksjonsnedsettelse, forble omtrent uendret mellom de to tidspunktene (henholdsvis 29% til 28% og 30% til 28%). Samtidig sank andelen med mentale helseplager, med en nedgang i symptomer på angst/depresjon fra 33% til 11% og en nedgang i symptomer på PTSD fra 5% til 2%. Faktorer som predikerte økt forbedring i mental helse fra rekruttering- til oppfølgingstidspunktet inkluderte ung alder samt kort botid og ikke-gyldig oppholdstillatelse i transitt (artikkel 2). Å rapportere symptomer på angst/depresjon ved rekruttering var en statistisk signifikant prediktor for kroniske smerter ved oppfølging. Mens de fleste flyktningene rapporterte færre symptomer på angst, depresjon og PTSD i tidlig bosettingsfase, hadde en liten gruppe persisterende mentale helseplager. Blant disse var mentale helseplager og kroniske smerter assosiert med hverandre og med en lang rekke post-migrasjonsstressorer. Cirka en av fire med kroniske smerter brukte smertestillende medikamenter ved begge undersøkelsestidspunkter, mens ingen med mentale helseplager brukte antidepressiva (artikkel 3).

Konklusjon: Dette doktorgradsarbeidet bekrefter at mentale helseplager er en sentral utfordring for mange flyktninger, men i tillegg løftes kroniske smerter fram som en vanlig plage med relevans både for livskvalitet og integrering. Forbedringen i mental helse i løpet av vår ettårige observasjonstid reflekterer teorien om en *honeymoon effekt*

i tidlig fase etter bosetting. Videre stadfestes traumatiske erfaringer som en alvorlig helserisiko, men funnene viser at forhold i post-migrasjonsfasen, som erfart dårlig økonomi, dårlige sosiale relasjoner og dårlig tilgang til relevant informasjon, trolig fortjenester større oppmerksomhet som viktige risikofaktorer for helse hos bosatte flyktninger. Mottagerland bør intensivere bestrebelser på å redusere sosioøkonomisk betinget stress i post-migrasjonsfasen. Helsesystemer bør i sin mottagelse av flyktninger forebygge avbrudd i oppfølging av kroniske syke og anerkjenne sammenhengen mellom kroniske smerter og mental helse. Behandlingstiltak mot smerter kan være en lovende tilnærming til komorbide mentale helseplager. Tidspunktet for helseundersøkelse av nyankomne flyktninger, asylsøkere og familiegjenforente bør optimaliseres for å fange opp både tidlig behov for informasjon og kontinuitet og samtidig helseproblemer som manifesterer seg med økende botid. Fremtidige forskningsstudier bør forlenge observasjonstiden og evaluere mulige intervensjoner, både innen helsefremming, forebygging og behandling av vanlige tilstander blant mennesker drevet på flukt.

5 List of publications

1. Strømme EM, Haj-Younes J, Hasha W, Fadnes LT, Kumar B, Igland J, Diaz E: **Health status and use of medication and their association with migration related exposures among Syrian refugees in Lebanon and Norway: a cross-sectional study.** *BMC Public Health* 2020, **20**(1):341-341. (Paper I)
2. Strømme EM, Haj-Younes J, Hasha W, Fadnes LT, Kumar B, Igland J, Diaz E: **Changes in health among Syrian refugees along their migration trajectories from Lebanon to Norway: a prospective cohort study.** *Public Health* 2020, **186**:240-245. (Paper II)
3. Strømme EM, Igland J, Haj-Younes J, Kumar B, Fadnes LT, Hasha W, Diaz E: **Chronic pain and mental health problems among Syrian refugees – associations, predictors, and use of medication over time: a prospective cohort study.** *Under revision in BMJ Open.* (Paper III)

Paper I and II are freely available under the terms of the Creative Commons Attribution Licence (CC BY) (open access).

6 Introduction

The outbreak of the devastating Syrian civil war in March 2011, as part of a wider wave of protests and uprisings in the Arab world, marked the starting point of a refugee exodus unprecedented in magnitude. Most of the displaced Syrians sought shelter in neighbouring countries, like Turkey now hosting 3.6 million Syrians (**figure 1**).⁶

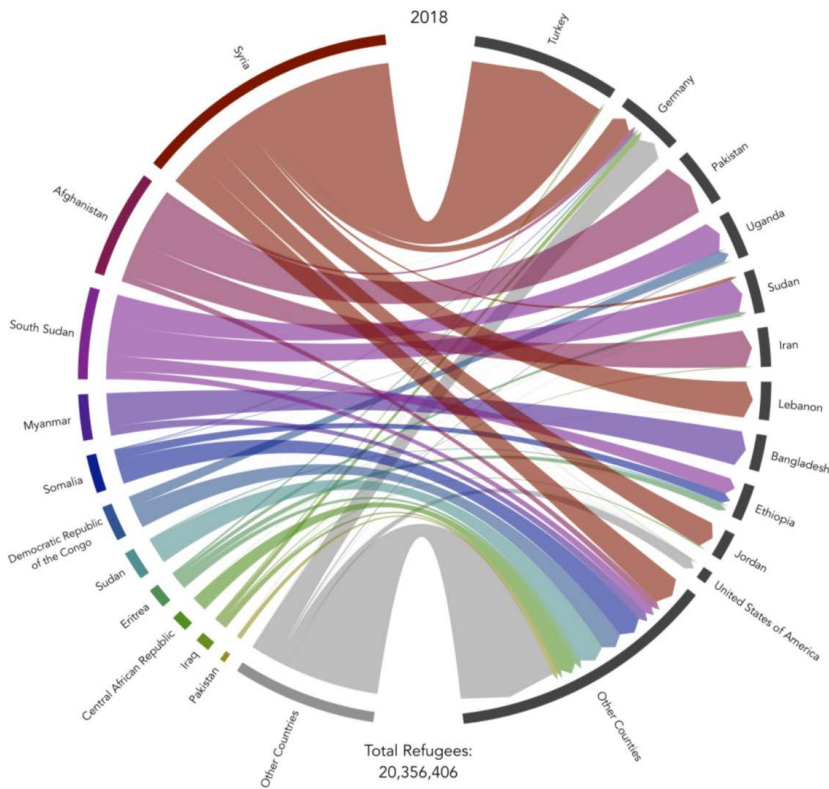


Figure 1. The worldwide migration path of refugees from the countries that yield the most refugees to the countries that host the most refugees in 2018. Figure by Towards Data Science based on data from UNHCR. Re-print with permission.⁷

Similarly Lebanon, although not ratifying the 1951 Refugee Convention,⁸ now hosts one of the largest per capita refugee populations worldwide, where one in seven inhabitants is a Syrian refugee.⁶ Some Syrians have also attempted to find refuge in Europe, and the steep increase in new arrivals from 2015 rapidly reached the headlines with daunting phrases like ‘wave of refugees’ and ‘European refugee crisis’.⁹ Officials in receiving countries expressed concerns as to how national public services, including health care services, could accommodate such large influx on new inhabitants (**figure 2**). Simultaneously, scientific literature on health care needs among Syrian refugees were sparse. With this backdrop of mass displacement, official concerns, and lack of evidence we developed a research study investigating prospective changes in health among Syrian refugees migrating from the Middle East to Northern Europe to inform health care policies and practices. In this first chapter I will provide an overview of the background for the study. In Section 6.1 I discuss the relevance of forcibly displacement for public health and its current standing. In the following section I consider the relation between migratory stressors and health (6.2), before diving into theoretical perspectives (6.3) and thereafter empirical perspective (6.4) on health among refugees. At the end of the chapter, in section 6.5, I describe research gaps within the field and the research question of this study. The introduction is followed by chapters presenting objectives (7), materials and methods (8), results (9), discussion (10), conclusion (11), and future perspectives (12).



NRK: Flyktninger kan koste Norge 750 milliarder kroner

Figure 2. News headline from VG, one of Norway's largest newspapers, September 2015 stating: 'Refugees may cost Norway 750 billion Norwegian kroner' (my translation from Norwegian to English). Re-print in line with §37 in The Norwegian Copyright Act.¹⁰

6.1 Forced displacement and public health

Over the past decade the world has seen a surging number of forcibly displaced individuals including refugees, asylum seekers, internally displaced persons, and returnees (**figure 3**).⁶ By the end of 2019, the global figure remained at a record high with 79.5 million persons forcibly displaced due to violence, conflict, and other human rights violations. The increasing numbers have largely been driven by the devastating Syrian civil war, in which 6.6 million international displacements make Syrians the largest displaced population worldwide. These unprecedented demographic changes have galvanised forced migration to become an essential part of the public health agenda for the 21st century.

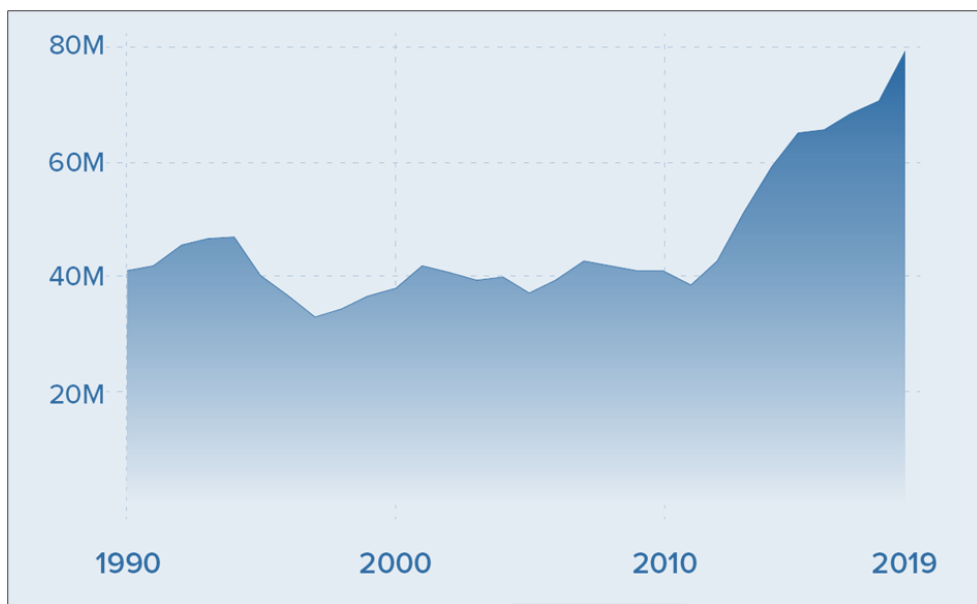


Figure 3. Forcibly displaced individuals worldwide 1990-2019 as a result of 'persecution, conflict, violence, human rights violations or events seriously disturbing public order'. Adapted from UNHCR's *Global Trends 2019* report. Re-print authorized.⁶

Who bears the responsibility for the health and wellbeing of forcibly displaced populations? As state parties or signatories of the *International Covenant on Economic, Social and Cultural Rights* and other international instruments recognizing health related human rights, receiving countries are obliged to protect the health of displaced individuals sojourning in their territories.¹¹ Thus, obligations to secure the 'highest attainable standard of health' to all inhabitants under international law ought to be reflected in the priorities of national health care systems. In the same vein, the United Nation's *Sustainable Development Goals* operate on a global scale, yet the responsibility to achieve them lie within the members states. The Sustainable Development Goals commit member states to strive towards universal health coverage.¹² On the path to realising target 3.8 on ensuring *access to affordable essential health care for all* countries cannot afford to leave anyone behind, but forcibly displaced populations seem to be particularly prone to fall into the cracks.¹³

Mass-displacement of individuals escaping violent conflict demands comprehensive public health responses. Prompt public health measures are required to manage the initial reception phase and respond to immediate humanitarian needs, like many countries experienced with the abrupt influx of Syrians escaping the atrocities of war from 2011 onwards. As officials in many countries currently face unprecedented numbers of arriving asylum seekers and refugees, they are forced to grapple with securing the health of the newcomers without negotiating the welfare entitlements of the resident population. The Lebanon Ministry of Health warned in 2013 that the high number of Syrian refugees heavily strained the hospital capacity and posed a risk to Lebanese public health.^{14, 15} Beyond the urgent response, public health policies with long-term perspectives are imperative to accommodate protracted situations. Countries surrounded by war-torn neighbours for decades like Jordan, now hosting both Palestinian, Iraqi, and Syrian refugees who have arrived in various epochs, face a double burden of ensuring both acute and long-term strategies simultaneously. Throughout Europe emergency-driven health measures have characterized much of the institutional response to the increasing number of forcibly displaced individuals and failed to adequately address the need for sustainable integration into national health systems.¹⁶

6.2 Pre-, peri- and post-migratory stressors and health

Migration is an independent determinant of health.¹³ For those who are forced to leave their homes because of conflict and persecution the potential for adverse health consequences seems incontestable. While often depicted as a perilous journey in an overloaded open boat prone to capsize, displaced persons may face harms to health and well-being at all stages of their migration path. The range of stressors endured by forcibly displaced may include persecution, violence and loss of beloved ones and belongings in the pre-migration setting, impoverishment, detention, and uncertain prospect in the transient peri-migration setting and a resettlement setting frequently characterised with alienation, financial hardship, and limited access to welfare services. Conversely, protective factors mitigating the effects of war and hostilities may include social support, recaptures sentiments of safety, and the notion of a new

start and improved living conditions in the recipient country. To capture the joint effect of risk factors encountered at various stages of the migration cycle an approach using a life course perspective has been suggested.^{17, 18}

Are pre-, peri- or post-migratory stressors of greatest importance for health? While mental health research among forcibly displaced populations traditionally has focused on trauma exposure and risk factors of the pre-migration phase, the recent years have brought about a shift in focus towards risk factors of the post-resettlement phase.^{19, 20} Indeed, a growing body of literature has found that the health implications posed by adverse experiences and poor living conditions after resettlement in a new country may have a larger impact on mental health than pre-displacement factors.^{19, 21}

Although the account of psychological stressors as a causal agent of poor health outcomes have been verified by many scholars, the literature lacks a consistent set of terminology to delineate stress related exposures and outcomes. Many authors make a conceptual distinction between the terms *stressor*, *stress* and *distress*.²² While *stressor* is used to denote exposure and risk factors, *stress* represents an overarching term for the process and *distress* refer to the stress response or the potential adverse outcome precipitating from exposure to stressors. Antonovsky defines *stress* as ‘the strain that remains when tension is not successfully overcome’.²³ Conversely, overcoming stressors is commonly referred to as *coping*. In this thesis I will use the terms *stressors* and *distress* to describe exposures and outcomes, respectively.

6.3 Theoretical perspectives on health among refugees

In the following sections I will present and explain theories of migration health: the healthy migrant effect, the exhausted migrant and allostatic load theory, as well as the postulated honeymoon phase.

6.3.1 Healthy migrant effect

Migrants have an all-cause mortality and morbidity advantage relative to locally born in high-income resettlement countries, although there is substantial heterogeneity depending on country of origin and disease category.^{24, 25} The lower overall mortality

and morbidity rates shown for migrants have been attributed to *the healthy migrant effect* theory postulating that selection into migration is not random but favour the healthiest individuals.²⁶ The *wear off* component of the healthy migrant hypothesis further implies that the health advantage decline over time due to assimilation.²⁷ Noticeably, empirical research is ambiguous as to whether the healthy migrant effect encompass forcibly displaced populations. Summarised findings from 54 countries, based on operational health data from humanitarian aid agencies, have shown mortality rates in refugees comparable to mortality rates in resident populations, but the quality of these data is uncertain.²⁸ In Norway, a study found mortality risk among refugees below levels of the general population the first three years after resettlement, but risk exceeding the general population over time.²⁹

6.3.2 The exhausted migrant and allostatic load

Derived from observations of a relatively high burden of disability among migrants later in life, *the exhausted migrant theory* implies anticipation of declining health outcomes among migrants over time.³⁰ Various underlying mechanisms have been suggested to explain this ‘exhaustion’, including the additive effect of stressors related to socioeconomic and relational factors, integration, and xenophobia.¹⁸ Similarly, *the allostatic load theory* describes the biological effects of chronic stress over years (**figure 4**).³¹ When normal homeostasis is overloaded with stress, cardiovascular, neuroendocrine, metabolic, and immune systems act in dysregulated manners resulting in morbidity and mortality. Allostatic load has been used to explain declining health outcomes due to accumulation of stress through the migration phases. In line with these theories, a report from Denmark indicates a higher burden of disease for most conditions among refugees with short duration of stay compared to natives, and worsening health over time.²⁷

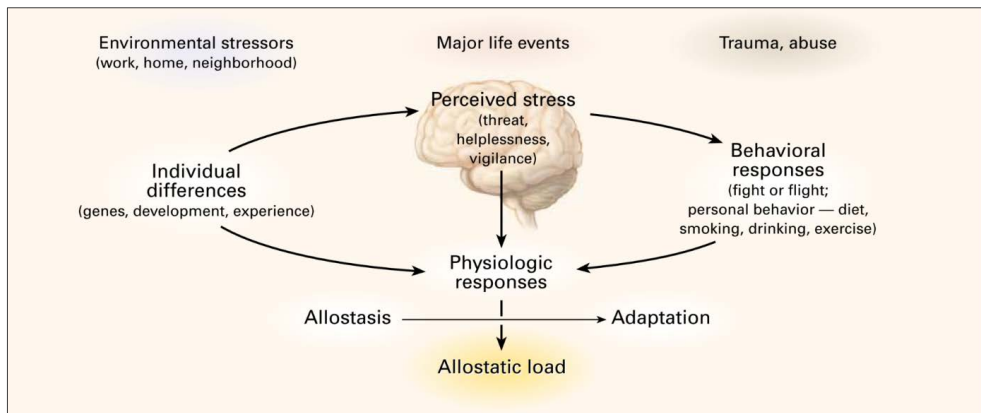


Figure 4. The allostasis model. Protective and damaging effects of stress mediators. Reproduced with permission from McEwen BS. Protective and damaging effects of stress mediators. *N Engl J Med.* 1998;338(3):171-9, Copyright Massachusetts Medical Society.³¹

6.3.3 Honeymoon phase?

Health in the earliest stage post-migration have been less elucidated. In 1955, Lysgaard presented the U-curve illustrating how cultural adjustment in a foreign society over time is featured by an initial positive phase before difficulties increase.³² Based on the sanguine sentiments frequently demonstrated short time after arrival in a new country, the early post-migration phase have been referred to as *the honeymoon phase*.³³ While some scholars state that the honeymoon period among refugees commonly lasts for 1-3 months,³⁴ this has not been confirmed scientifically. Despite this uncertainty, the first period after settlement in a new country has been highlighted as critical in terms of mental health implications for refugees and asylum seekers.³⁵

6.4 Empirical perspectives on health among refugees

6.4.1 Health in refugees

The health challenges presented by forcibly displaced populations are highly dependent on contextual factors both in the country of origin and the country of resettlement. A general practitioner evaluating the health status of a refugee patient

presenting in her office in Northern Europe will have to consider the epidemiological profile of the pre-displacement setting, conditions that might have arisen in short- and long-term transit settings along the migration path as well as common complaints of the reception setting. Further, the panorama of health problems is affected by length of stay in the resettlement country. While accidents and acute infections predominate en-route and immediately after arrival,^{36,37} chronic conditions and mental health problems commonly prevail in the long-term resettlement phase.³⁸

An extensive body of literature assesses mental health among refugees and asylum seekers.³⁹ The great variation in reported prevalence proportions, even at the level of systematic reviews, highlights the heterogeneity among forcibly displaced populations. Systematic reviews and meta-analyses reporting pooled summary measures for mental health among refugees and asylum seekers find substantial variety in the prevalence of depression (range 5-44%), anxiety (range 5-44%) and post-traumatic stress disorder (PTSD) (range 9-36%).⁴⁰⁻⁴³ Notably, larger studies (> 200 participants) have a significantly lower prevalence of depressive disorders compared to smaller studies, likely due to sub-optimal design and publication bias.^{40,43} Overall, refugees and asylum seekers seem to experience higher rates of mental ill health compared to the general population who has a lifetime prevalence of 10% for mood disorders and 4% for PTSD according to pooled analyses.^{44,45}

Somatic health among refugees and asylum seekers has not received the same attention as mental health, with few rigorous studies and a shortage of reviews. A paper reviewing studies from Western countries found 49-77% of asylum seekers to be self-reporting chronic physical symptoms or complaint, of which common conditions included dermatological, dental, gastrointestinal, and respiratory problems, as well as headache and musculoskeletal pain.⁴⁶ The same findings are echoed in later medical record-based studies among refugees and asylum seekers in Europe,^{37,47,48} although these additionally note a significant number of health service encounters regarding mental health. Notably, the literature in the field suffers from a profound shortage of population-based studies and research incorporating assessment of both somatic and mental health.

6.4.2 Health among Syrian refugees

Non-communicable disease (NCD). In recent years, an increasing number of mostly survey-based studies evaluate health among Syrian refugees, particularly Syrians dwelling in the countries neighbouring Syria.⁴⁹ In studies of chronic disease among Syrians in Jordan and Lebanon about one in four self-reported to suffer from at least one NCD, of which hypertension emerged as the most common NCD (7-17%), followed by type 2 diabetes mellitus (3-10%), cardiovascular disease (6-3%), and chronic respiratory disease (3-4%).⁴⁹⁻⁵² Compared to these findings among non-camp Syrians, one study reported higher rates of hypertension among refugees residing in the Zaatari refugee camp in northern Jordan (30% among women and 41% among men).⁵³ Studies assessing the prevalence rate of NCDs among Syrians inside Syria after the outbreak of the war have not been identified.

Communicable disease. Turning to communicable disease, a review among Syrian migrants in Europe found the most frequently reported challenges to be leishmaniasis and colonization with drug-resistant Gram-negative bacteria.⁵⁴ In Turkey, hosting over 3.6 million Syrian refugees, the situation for communicable disease has been stable since the beginning of the Syrian conflict, except for an increase in cases of leishmaniasis and measles.⁵⁵

Impairment, injuries, and chronic pain. A throughout account of physical impairment among Syrians is lacking. One review estimating the prevalence of physical impairment among Syrian refugees based their pooled calculations on reports which have not been subjected to peer-review.⁵¹ Similarly, literature on injuries and chronic pain conditions among Syrian refugees are almost exclusively confined to case series.⁵⁶

Mental health. Several studies reporting compromised mental health among Syrian refugees have emerged over the last years. A study from Turkey found the prevalence of symptoms of anxiety, depression, and PTSD among Syrian refugees to be 36%, 35% and 20%, respectively.⁵⁷ Among Syrian refugees in Lebanon the prevalence of depression has been reported to be 44% and PTSD 27%.^{58, 59} Turning to Scandinavia, a

study reported 40% depression, 32% anxiety and 30% PTSD among adult refugees from Syria resettled in Sweden,⁶⁰ while corresponding prevalence proportions in data from Norway were 36% anxiety/depression and a 35% PTSD.⁶¹

6.4.3 Access to health care and medicines

In the global community's effort to improve health for all, *universal health coverage* is viewed as a pivotal road by ensuring *access to quality essential health care services and access to safe, effective, quality, and affordable essential medicines*. Although progress towards universal health coverage is a policy priority both for global institutions and individual countries, many forcibly displaced individuals have yet to see the promises of access realised.

Infrastructure for health care services and distribution of essential medication may be critically dismantled in settings of violent unrest and displacement.⁶² Along the migration trajectories of asylum seekers and refugees, access to care and medication may be further impeded by lacking entitlements or arbitrary and fragmented services. Indeed, recipient country policies aimed at enforcing restrictive immigration control have been shown to negatively affect both health care access as well as health outcomes of migrants.⁶³ While the five A's of access to health care: *availability, adequacy, accessibility, affordability, and appropriateness* have been widely employed to identify demand and supply-side barriers,⁶⁴ issues of *communication, confidence* and *continuity of care* have been identified as challenges of particular relevance for health care delivery to forcibly displaced individuals resettled in high-income countries.⁶⁵

Literature addressing access to services for Syrian refugees in neighbouring countries highlight gaps in general, reproductive, and mental health services as well as immunisation coverage.⁶⁶ In Jordan, a meta-analysis found that among Syrian refugees 66% reported financial constraints and 27% unavailability of medicines or equipment as barriers to receiving health care.⁵¹ In the Lebanese context the complexity of the highly privatised health care system, with administrative barriers including refugee registration and insurance schemes as well as high out-of-pocket expenditures, have

curbed health care access or caused indebtedness for many Syrian refugees.¹⁴ A review of access to health care among Syrian refugees in Turkey pointed towards barriers relating to health system navigation, language, lack of confidence, and cost.⁶⁷

Similarly, key features in studies assessing access to medication in Western countries, both among Syrians and other refugees, include difficulties navigating the system, lack of interpreters, as well as differences in culture and traditions.⁶⁸

Access to health care and coverage of services are measured using a wide variety of methods.⁶⁹ Interventions aimed towards certain segment of the population, such as vaccines or antenatal care, or to persons with a specific health condition, such as anti-retroviral therapy for HIV-positive, are commonly reported as coverage rates. However, it is more challenging to evaluate access where the need for health care services or medicines depends on a multitude of factors, with further increased complexity in the case of populations on the move. As moving populations are particularly prone to medication interruption,⁷⁰ assessing self-reported use of medicine for chronic conditions may be of particular importance to evaluate forcibly displaced individuals' access to essential medicines.

6.5 Rationale and research question

Despite the attention forcibly displacement has received in the public health sphere, there are important gaps in the current knowledge base. Two shortcomings in the research field should be highlighted. Firstly, the main bulk of empirical data concerning health among refugees employs cross-sectional design. Longitudinal studies predominantly start observations a while after arrival in the resettlement, and there is great heterogeneity in terms of time frames examined. Overall, the health of refugees in the transit and the early post-migration stage is poorly examined, presumably due to the difficulties of recruiting migrants to participate in research under temporary or unfamiliar settings. Apart from the study this thesis is based on, few if any other studies, have investigated temporal health outcomes among refugees traversing international borders from a transit phase to an early post-migration phase.

Secondly, the primary focus of literature on health among forcibly displaced individuals has been concentrated around mental health. The body of literature evaluating somatic health is more meagre and overall, a holistic approach looking at the integrated impact of somatic and mental health challenges is lacking.

The present gaps in the literature limit evidence-based approaches to the management of health care in settings of mass displacement. In the wake of the unparalleled exodus from war-torn Syria the need for an increased understanding of longitudinal changes in somatic and mental health among people displaced across borders appeared to be pressing. Underpinned by the current shortcomings in the literature, we posed the following overarching research question:

How does health and its associations with migration related exposures change from a transit phase to an early resettlement phase among Syrian refugees?

We hypothesized that overall health would deteriorate over time, both in line with the ‘wear off’ component of the healthy migrant hypothesis and theories of the exhausted migrant and allostatic load (**figure 5**). However, the question of whether our measures of health in the early post-migration phase would capture the poorly described honeymoon phase was pending. Importantly, we expected variation based on risk and protective factors linked to the concept of vulnerability and resilience.

The analytic framework for this thesis stems from Antonovsky’s *salutogenic theory*.²³ Hence, the aspiration for the analyses is not a one-sided emphasize on risk factors, but also on protective factors, not a sole focus confined to the ill but also the healthy. In the assessment of results I also draw on *life-course epidemiology* underscoring the joint effect of health related hazards and protectors experienced along the migration trajectories.¹⁷ Further, I lean on Engel’s *biopsychosocial model*, acknowledging the integrated nature of biology, psychology, and socio-environmental factors, for a holistic analytic approach to somatic and mental health problems.⁷¹ Finally, I will evaluate our findings in light of the predominant theories of migrant health discussed in section 6.3.

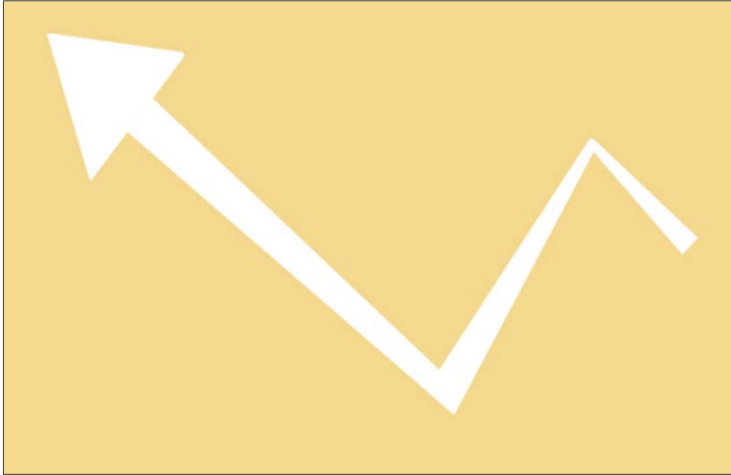


Figure 5. Contribution to the CHART study's logo competition among Syrians in Bergen by Falah Issa who write this about his design: 'I read some statistics which said that upon resettlement the life of refugees is very good because they feel safe. After a while they get depressed because they find that things take time. In the end, however, they adapt, and life gets better, and I believe health follows the same pattern and will eventually improve' (my own translation from Norwegian to English). The first part aligns well with theories of migration health and the hypothesis of this thesis. Printed with permission from the designer.

7 Objectives

The main objective of this thesis was to describe and analyze the temporal changes in health outcomes and their association with migration related exposures among Syrian refugees transferring from a transit phase in the Middle East to an early resettlement phase in Northern Europe.

7.1 Sub-objectives

1. To describe the health status, use of medication and cross-sectional associations with migration related exposures among Syrian refugees in Lebanon and Norway. (Paper I)
2. To explore longitudinal changes in health and use of medication among Syrian refugee transferring from a transit setting in Lebanon to an early resettlement setting in Norway. (Paper II)
3. To examine associations and predictors for chronic pain and mental health problems, as well as and use of medication for these conditions, among Syrian refugees over time. (Paper III)

8 Materials and methods

8.1 Study setting

The first part of this study is set in Lebanon, an upper middle-income country, with a population of 6.9 million people and estimated 134 refugees per 1,000 inhabitant.⁷² In terms of health care expenditures, Lebanon uses US\$ 687 per capita, of which around half is government spending and half is private spending. Syrian refugees who are registered with the UNHCR are entitled to subsidized health care where 75% of costs are covered, but many find it challenging to pay the remaining 25%.¹⁵ Further, a Médecins Sans Frontières survey conducted in 2012- 2013⁵ indicated that approximately 41% of Syrian refugees in Lebanon were unregistered. Access to health care for Syrians not registered with the UNHCR depends on their ability to pay for expensive private insurance schemes or cover large out-of-pocket expenditures.⁵

The second part of the study is set in Norway, a high-income country with 5.3 million inhabitants, and a refugee population of approximately 4.4%.⁷³ The Norwegian health system rank number three in terms of health care expenditure per capita worldwide.⁷² The health system is universal and dominated by public providers, 85% is funded by the government and out-of-pocket payments are small. Asylum seekers and refugees are entitled to the same health services as the general population,⁷⁴ but barriers to care, particularly relating information, language and trust, exists.⁷⁵

8.2 Study design

This is an observational study based on survey data collected among Syrian refugees both in a conflict-near setting in the Middle East and in a resettlement setting in Northern Europe. The study is part of the Changing Health and health care needs Along the Syrian Refugees' Trajectories to Norway (CHART) project encompassing both a cross-sectional study, a prospective study and two randomized controlled trials.⁷⁶ In Paper I baseline data from a population of Syrian refugees in Lebanon awaiting resettlement to Norway (study population A) was presented together with cross-sectional data collected among Syrian asylum seekers and refugees dwelling in

Norway (study population B). Paper II and III present results from a prospective study where we used baseline data from the population recruited in Lebanon (study population A) and follow-up data collected approximately one year after their arrival in Norway (**figure 6**).

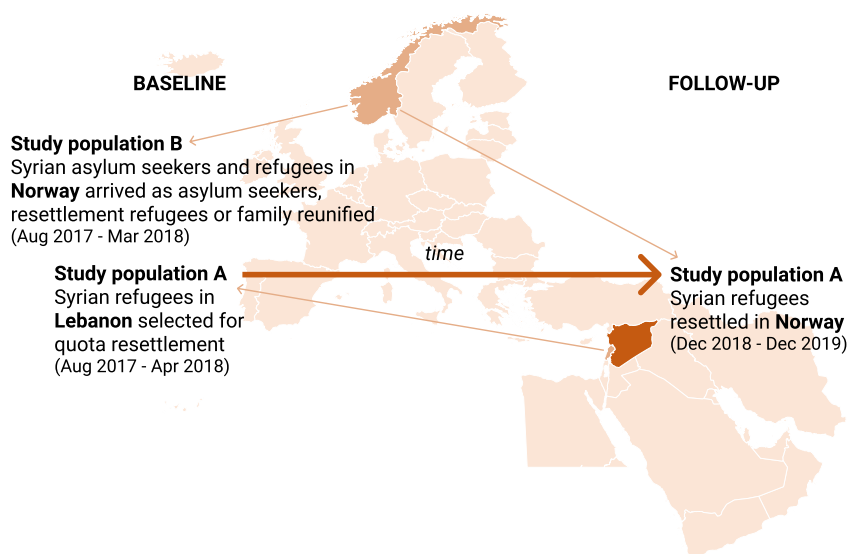


Figure 6. Study design, setting and participants.

8.3 Participants

Syrian refugees were recruited at several locations in two different countries: 1) in a transit setting¹ in Lebanon (study population A), and 2) in an early resettlement setting in Norway (study population B). Study population A was followed prospectively and re-assessed approximately one year after they had been resettled in 134 different municipalities throughout Norway. In section 8.3.2 and 8.3.3 I will present the recruitment process of the two study populations separately (**figure 7**).

¹ Many Syrian refugees reside in Lebanon for a long time, yet the Lebanese government insists that is a *transit* country rather than a country of asylum or permanent settlement as reflected in the Lebanon Crisis Response Plan: ‘Lebanon is neither a country of asylum, nor a final destination for refugees, let alone a country of resettlement’.⁷⁷ UNHCR and Government of Lebanon. Lebanon Crisis Response Plan 2015-2016 in Regional Refugee & Resilience Plan 2015 - 2016 in response to the Syria crisis. Beirut; 2014.

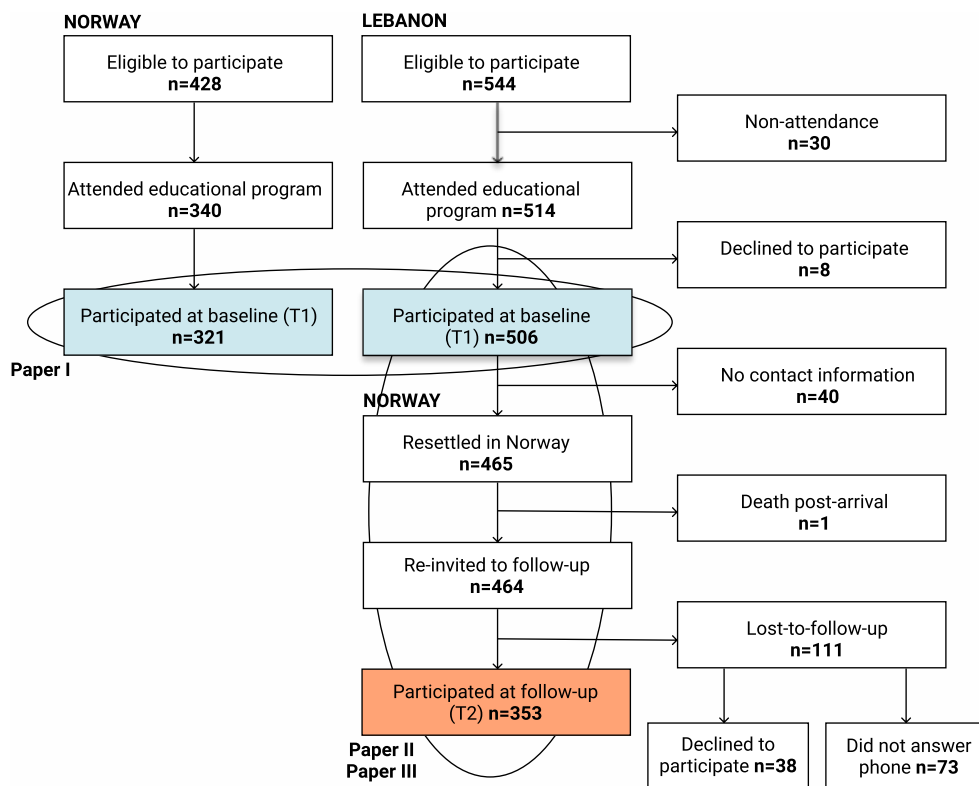


Figure 7. Flow chart of participants available for study in paper I, II and III.

All individuals born in Syria or with Syrian nationality (including Kurds and Palestinian refugees from Syria) aged 16 years and above were considered eligible for inclusion, while exclusion criteria comprised status as unaccompanied refugee minor or indications of severe mental disorder disclosed while completing the survey.

8.3.1 Sample size

The sample size calculations for the CHART project were based on other research questions than those posed in this thesis. In the planning stage of the CHART project few studies presented updated prevalence rates of common health challenges among Syrians. Sample size calculation relied on literature suggesting the prevalence of poor self-rated health in pre-war Syria to be 9%.⁷⁸ To be able to detect a 10% difference in the prevalence of poor self-rated health in a cross-sectional comparison between different study locations (Lebanon, Greece and Norway) with a 5% probability of type 1 error ($p < 0.05$) and a power of 0.80, we found it necessary to recruit at least 219 individuals in each setting. We accounted for 10 % attrition and subsequently aimed to enroll 250 Syrians at each location. Due to the unstable political climate in which recruitment took place, we overrecruited in Norway and re-directed planned recruitment in Greece to Lebanon.

8.3.2 Recruitment in Lebanon (study population A)

In the period August 2017 to April 2018, we recruited Syrian refugees registered with the UNHCR in Lebanon and granted resettlement in Norway by the Norwegian Directorate of Immigration, the central administrative agency for immigration in Norway. Although under protection by the UNHCR, most Syrians in Lebanon are residing in private accommodations or informal settlements in line with the Lebanese authority's non-camp policy. Refugees who are granted resettlement in Norway are required to participate in the mandatory pre-travel Norwegian Cultural Orientation Program to learn about Norwegian culture and society, including customs, laws, and public services. The program is arranged by the International Organization for Migration (IOM) Norway on behalf of the Norwegian Directorate of Integration and Diversity (IMDi). For adults (16 years and above) the classes run over four days. We approached the refugees in connection with these mandatory educational activities. Recruitment was carried out during three different IOM Norway resettlement missions to Lebanon: August 2017, October 2017, and April 2018. During these three missions the program was held at eight different sites, mainly in Beirut and surrounding

districts. All Syrians from 16 years and above participating in the program at the time of recruitment were considered eligible for our study (consecutive sampling).

In Lebanon altogether 544 individuals were eligible to participate. Of these 514 attended the program at the time of recruitment and 508 chose to enroll. Two of these were excluded due to age < 16, yielding a final sample of n=506. During 2017-2018 a total of 4,307 Syrian resettlement refugees arrived in Norway.⁷⁹ Thus, we recruited roughly 12% of all arrivals of Syrian resettlement refugees in this period.

8.3.3 Recruitment in Norway (study population B)

In the period August 2017 to March 2018, we recruited Syrian refugees and asylum seekers who had arrived in Norway by various routes; either as resettlement refugees, family reunited of refugees, asylum seekers on the temporary EU-relocation scheme or as asylum seekers traveling unregistered through Europe or European Russia before reaching Norway. We approached the refugees in connection with mandatory educational activities at three different sites: two educational centres for newly arrived immigrants and one asylum reception centre. The sampling process was a combination of stratified and consecutive sampling, as has been suggested suitable when recruiting refugee populations to research.^{80, 81}

Recruitment in two educational centers. In Norway, newly arrived adult refugees as well as adult family members arriving on family reunification schemes have the right to and are obliged to complete a two-year educational program. We recruited Syrian refugees to our study at two educational centers offering the two-year *Introduction program*: Nygård School in Bergen municipality and Kongsgård School in Kristiansand municipality. All Syrians in randomly selected classes from each educational level were invited to attend an information session to learn about the study by SMS (Bergen) or orally by their teachers (Kristiansand) (stratified sampling). At Nygård school 311 persons were invited to participate. The information sessions were attended by 226 individuals. Altogether 209 persons meet the inclusion criteria and chose to enroll (41% of Syrians at the school, 30% of Syrians in the municipality). At Kongsgård school 56 individuals were invited to participate. The information sessions

had 53 attendees. Altogether 52 individuals were recruited (25% of Syrians at the school, together with the asylum reception center 28% of Syrians in the municipality).

Recruitment in one asylum reception center. In Kristiansand municipality we also recruited participants in one reception center for asylum seekers and refugees. All Syrians participating in the educational program offered at the reception center in the period of recruitment was invited to participate (consecutive sampling). In total 60 of the 61 individuals invited chose to participate in the study.

8.3.4 Data collection

At all sites, both in Norway and Lebanon, sessions to inform about the study were held in class breaks at the same campus as the educational program. The participants received information about the objectives of the study in Arabic (or Kurmaji when necessary) both orally and written. We informed about the principle of voluntary participation, the right to withdraw from the study at any time, confidentiality, and privacy rights in data handling, and further that participation in the study would not affect legal status or the access to health care services. Written informed consent was requested from those who accepted enrollment, for illiterates by a written 'X'. Subsequently, we distributed the survey questionnaire for self-completion on-site. Project staff assisted those with low literacy level and health care workers were available to respond to potential signs of re-traumatization during the survey completion. Participants in Lebanon received a modest monetary recompense (USD 10) for the time spent on the survey, while this was not provided for participants in Norway as refugees under Norwegian protection receive funding by the state.

8.3.5 Non-response at baseline

At all recruitment locations we registered any reason for absence from the information sessions as reported by counselors, teachers, or fellow students. Reasons included class in different building, class excursion, sick leave, teacher's sick leave, internship at workplace, maternity leave and unknown reason. Among those who chose to decline the invitation after receiving information about the study, the majority

spontaneously reported their reason to abstain. Explanations included ‘waste of time’, ‘afraid that participation might affect legal status’ and ‘misbelief in the ability to influence public services through research’.

8.3.6 Follow-up in Norway (study population A)

The follow-up data collection of the cohort recruited in Lebanon was carried out during December 2018 to December 2019, approximately one year after the respondents’ arrival in Norway. Although consent to be re-invited to the follow-up survey was given at baseline in Lebanon, contact information post-migration was unknown at the time. We collaborated with IMDi and the local public refugee offices in the municipalities where the refugees had been resettled, to obtain postal addresses and phone numbers after resettlement in Norway. Our participants were identified through matching the UNHCR-number (which is the same for whole families), name and date of birth found in the IMDi digital database with the ID key list for our cohort. Arabic speaking study staff phoned all participants, informed about the follow-up survey, and repeated important principles of participation including the right to withdraw, confidentiality, and non-linkage to legal status or welfare rights. Subsequently, the follow-up study questionnaire was completed as a structured telephone interview.

8.4 Materials

8.4.1 Questionnaire development

A context-sensitive questionnaire assessing health and health care needs was developed for the CHART project (see appendix). Permission to use any licensed survey instruments was obtained from all relevant copyright holders (available upon request). The questionnaire was prepared in English and translated by a professional translation bureau in line with standard principles of good translation practice.⁸² The process entailed forward translation to Standard Modern Arabic by two independent translators before synthesizing and back-translation. Challenges in words and phrasing were discussed within the translation team and with a bilingual medical professional.

Finally, the survey instrument was piloted among a group of six Syrian refugees in a Norwegian asylum center with subsequent minor adjustments.

The CHART baseline questionnaire covers the following topics: health literacy, sociodemographic and migration related information, health status (including somatic and mental health and use of drugs), lifestyle habits, health related quality of life, and finally questions related to health care behavior and perceived access to services. The follow-up questionnaire features the same components and an additional part on food security. The primary outcome measures reported in this thesis are found in the health status section of the questionnaire. In the following I will elaborate on the variables included in paper I, II and III (**table 1**).

8.4.2 Independent variables

Sociodemographic factors. We recorded the following sociodemographic variables: age, gender, mother tongue, marital status, number of children, level of education and work participation prior to flight.

Migration related factors. Our research group sought to illuminate exposures relating to the experience of being forcibly displaced by mapping the following dimensions of the respondent's migration history: length of stay in Lebanon, stay in other transit countries, length of stay in other transit countries, migrating with or without family members, detainment during flight, legal status in Lebanon, and for the follow-up: time since arrival in Norway. Exposure to traumatic events relating to the migration experience was measured by the Single General Trauma Item.⁸³ In paper III we additionally included items from the WHO Quality of Life Scale to elucidate exposures related to experiences of living as a migrant. The WHO Quality of Life Scale has demonstrated good psychometric properties, reliability, and validity in Arab populations.⁸⁴ Respondents are asked to rate satisfaction with various aspects of their social relationships (domain 3) and environment (domain 4) on a 5-point Likert scale. We dichotomized the items into binary measures where either 'not at all' and 'a little' or 'dissatisfied' and 'very dissatisfied' were merged to indicate poor outcome.

Table 1. Overview of variables used in the different papers in this thesis

Domain	Examined	Paper		
		I	II	III
Independent variables				
Demographic variables	Current country of residence	x		
	Gender	x	x	x
	Age	x	x	x
	Mother tongue	x	x	x
	Marital status	x	x	x
	Number of children	x	x	x
	Education	x	x	x
	Work participation prior to flight			x
Migration and trauma related factors	Time since flight from Syria	x	x	x
	Time since arrival in Lebanon	x	x	
	Been in transit country before Lebanon	x	x	
	Time in transit countries	x	x	
	Migrating without family to Lebanon	x	x	x
	Detained during flight	x		
	No residence permit in Lebanon	x	x	x
	Exposed to potentially traumatic events	x	x	x
	Time since arrival in Norway			x
	Migrating without family to Norway			x
	Poor personal relationships			x
	Poor support from friends			x
	Poor safety			x
	Poor physical environment			x
	Poor economy			x
	Poor information			x
	Poor leisure activities			x
	Poor living place			x
	Poor access to health care			x
	Poor transportation			x
Mental health	Anxiety/depression			x
	PTSD			x
	Poor sleep			x
Dependent variables				
Health problems - current	Chronic pain	x	x	x
	Chronic impairment	x	x	
	Anxiety/depression	x	x	x
	HSCCL-10 score	x		
	PTSD	x	x	
	HTQ-score	x		

Health problems -
lifetime prevalence

Any of the listed health problems	X	
Non-communicable disease	X	X
Headache	X	
Abdominal pain	X	
Allergy	X	
Asthma	X	X
Cancer	X	X
COPD	X	X
Diabetes	X	X
Eczema	X	
Epilepsy	X	
Fibromyalgia	X	
Heart attack	X	X
Heart failure	X	X
Joint disease	X	
Kidney disease	X	
Liver disease	X	
Mental health problems	X	
Osteoporosis	X	
Other heart disease	X	X
Psoriasis	X	
Tuberculosis	X	
Stroke	X	X

Use of drugs

Use any of the listed drugs		X
Antiallergics	X	
Antidepressants	X	X
Antidiabetics	X	
Antihypertensives	X	
Antithrombotics	X	
Cholesterol lowering	X	
Drugs for asthma and COPD	X	
Drugs for GI disorders	X	
Other drugs	X	
Painkillers	X	X
Sedatives	X	X
Tranquillizers	X	X

8.4.3 Dependent variables

Lifetime prevalence of health conditions. Questions on general health status were obtained from The Nord-Trøndelag Health Study (HUNT).⁸⁵ The questions inquire: ‘Have you or have you had any of the following [conditions]?’ listing a variety of health conditions and symptoms including various NCDs and tuberculosis. We constructed a NCD variable combining cardiovascular diseases, chronic respiratory diseases, diabetes, and cancer in line with the definition by the World Health Organization.

Chronic pain and chronic impairment. Chronic pain was assessed using a single, validated item from the International Association for the Study of Pain asking: ‘Do you have physical pain now that has lasted more than 6 months?’. Chronic impairment was assessed by a question from HUNT asking: ‘Do you suffer from long-term (at least 1 year) illness or injury of a physical or psychological nature that impairs your daily life?’.

Mental health. To study mental health, we used the survey instruments Hopkins Symptom Checklist 10 (HSCL-10)⁸⁶ and the Harvard Trauma Questionnaire (HTQ)⁸⁷, which have had widespread use in surveys among refugees. Both instruments are validated and have displayed sufficient psychometric properties among Arabic speakers and in refugee populations.⁸⁸⁻⁹⁰

The HSCL-10 comprises ten questions asking the respondent to rate the burden of various symptoms of anxiety and depression during the last week on a four-point Likert scale. In line with the literature, we report mean item score and consider a score above 1.85 (range 1–4) as ‘psychological distress’, indicating a clinical anxiety and/or depression. Similarly, the HTQ rates the extent to which symptoms of post-traumatic stress have distressed the respondent within the same time frame and response scale as the HSCL-10. As recommended in the manual, we used mean item score 2.5 (range 1–4) as threshold for clinically relevant PTSD.

While mental health was considered an outcome variable in most analyses, a HSCL-10 score above 1.85 was considered an exposure variable in one analysis in paper III investigating whether mental health problems at baseline predicted chronic pain at follow-up.

Use of drugs. In this project we study self-reported use of relevant medicines for key chronic conditions as an indirect measure of access to essential medicines. To map the extent and frequency of use of various kinds of medication we used questions from the Oslo Health Study (HUBRO).⁹¹

8.5 Statistical analyses

8.5.1 Directed acyclic graphs

Directed acyclic graphs (DAGs) display assumptions about the relationship between variables and thus visualize the causal network between exposure and outcomes incorporating confounders, colliders, and mediators. In this study DAGs were used as a tool to guide all regression analyses to clarify the hypothesized direction of causality and assumed mechanisms connecting the variables under study (**figure 8**).

8.5.2 Statistical approach

Sociodemographic and migration related characteristics were described as crude prevalence proportions with 95% confidence intervals (CIs) and means with standard deviations (SDs) (paper I) or medians with interquartile ranges (IQRs) (paper II and III). To identify possible selection bias between responders and non-responders in the follow-up data we evaluated differences in demographic variables by Fisher exact test for binary outcomes and Student's t-tests for continuous outcomes.

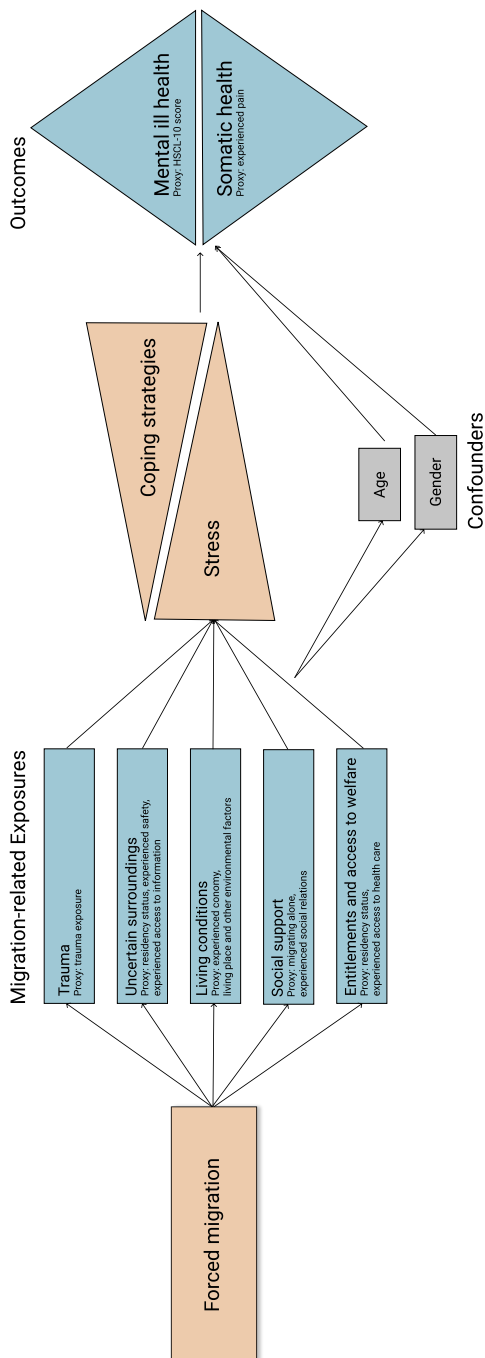


Figure 8. Example of DAG visualizing hypothesized direction of causality between variables in regression models in paper III.

In paper I we calculated prevalence proportions of main outcomes (burden of selected health problems and use of selected drugs) with 95% CI standardized to the age and gender composition of the Syrian population in Norway by the end of 2017. The standardization was performed to increase generalizability of results. Prevalence proportions were reported both in total, separately for Syrians recruited in Lebanon and Norway, as well as separately for men and women. In the cross-sectional analysis, the association between factors related to forced migration and chronic pain was studied by logistic regression, while the association between different experiences of forced migration and mental health problems was studied by linear regression. Age, gender, and current country of residency were considered possible confounders and hence adjusted for.

In paper II we evaluated changes in prevalence between baseline and follow-up using generalized estimating equations (GEE) with logit-link and binomial distribution specified. This method accounts for hierarchical data, i.e., correlation between repeated measures in the same individuals. The dataset was structured in long format with two observations per individual and timepoint as a binary covariate with baseline data as the reference. Results were reported as odds ratios (ORs) and 95% CIs with robust standard errors. As the same individuals constitute both the baseline and the follow-up sample adjusting for confounding were considered superfluous. We investigated effect modifications of change over time for the outcomes by stratification of effect measures and through introducing interaction terms in the GEE regression models.

In paper III we used Poisson regression to examine associations between pain, mental health and migration related exposures at baseline and follow-up separately. Further, we assessed if mental health status at baseline predicted pain at follow-up. Poisson regression with robust error variance (sandwich estimation) was chosen due to convergence problems with the log-binomial regression.⁹² GEE with log link and Poisson distribution⁹³ was used to assess whether time point was an effect modifier of associations and to evaluate temporal changes in use of medication.

Missing values were handled with listwise deletion in all regression models. All tests were two-sided with the level of statistical significance set to 0·05.

Data from paper-based questionnaires were entered in Excel (Microsoft Corporation, USA) (baseline) and EpiData Entry (The EpiData Association, Denmark) (follow-up). Cleaning and analyses were conducted in Stata/IC version 15.1 (paper I) and version 16·0 (paper II and III), (StataCorp LLC, USA). The Sankey diagrams in paper II were prepared using the web application sankeyMATIC. Other figures were prepared either in Stata or the online design program Figma.

8.6 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 the International Organization for Migration and conform to the principles embodied in the Declaration of Helsinki. We obtained informed consent from all respondents both before study enrolment and at follow-up (see appendix). Data were de-identified and stored on a protected server.

9 Results

The most prevalent health problem reported by respondents, both in Lebanon and Norway, is pain complaints such as headache and musculoskeletal complaints. While somatic outcomes are remaining at the same level between the transit setting in Lebanon and the follow-up in Norway, the most prominent finding of this thesis is a marked improvement in self-reported mental health. A minority shows persisting health problems, in which chronic pain and mental health are associated with each other and a range of migration related stressors. A high share of those reporting chronic conditions do not use relevant medication.

9.1 Synopsis of paper I

Paper I presents cross-sectional survey data among refugees at two different stages in the migration cycle: Syrian refugees in a conflict-near setting in Lebanon ($n=506$), and in a high-income recipient country, namely Norway ($n=321$). The paper describes health status and use of medication as well as associations between migration related exposures and health outcomes.

Respondents in Lebanon had a mean (SD) length of stay of 5 (1) years, while respondents in Norway had arrived on average 2 (1) years before the survey. Overall, the prevalence proportion (95% CI) of reported trauma exposure was 41% (37 – 44).

In both study settings, about half of the participants reported that they had never experienced any of the disorders or symptoms thematised in the questionnaire. Both in Lebanon and Norway headache was the most prevalent health problem experienced, followed by joint disorders, allergies, abdominal pain, and mental health problems. In the total sample we found the prevalence proportion of NCDs standardised to the age and gender composition of the Syrian population in Norway to be 12% (10 – 15). There was only one reported case of tuberculosis in our sample.²

² This single tuberculosis case does not appear in supplementary table 1 of paper I due to the standardization of prevalence proportions.

Slightly fewer participants in Lebanon reported to suffer from physical pain lasting for more than six months compared to participants in Norway (31% (27 – 35) versus 37% (31 – 43)), while findings for mental health were more similar between the two sites. Altogether 31% (27 – 35) in Lebanon and 33% (27 – 38) in Norway had symptoms indicating anxiety and/or depression. A probable PTSD was found among 4% (2 – 6) in Lebanon and 7% (5 – 11) in Norway.

Painkillers were the drugs most readily used on a daily base in both study countries (used by 9% (7 – 11)). The use of relevant drugs among those reporting non-communicable disease spanned from 6% (1 – 18) using cholesterol lowering medication among those with cardiovascular disease to 42% (22 – 64) using antidiabetic drugs among those with diabetes mellitus.

Using linear regression, we found migrating without family members and exposure to refugee related traumatic events to be associated with anxiety/depression and PTSD both in crude models and models adjusted for age, gender, and current country of dwelling. Traumatic experiences were also associated with chronic pain in the crude as well as the adjusted logistic regression model, but other migration related variables were not significantly associated with reporting chronic pain.

9.2 Synopsis of paper II

In paper II, we seek to mitigate the lack of research into temporal changes in health along the cross-border journeys of refugees. Using a prospective longitudinal design, the paper aims to assess alterations in health outcomes and use of medication, distribution of different health status trajectories as well as effect modifiers affecting health in the early post-migration period. Syrian refugees were surveyed at baseline in Lebanon at follow-up approximately one year after arrival in Norway (n=353), see figure 7 for flow chart.

We found the prevalence of NCDs to decline from baseline to follow-up (12% – 9%, odds ratio (OR) 0.68 (0.46 – 1.00)). Somatic complaints such as chronic pain and chronic impairments remained nearly unchanged between the two timepoints (29% – 28%, OR 0.97 (0.73 – 1.29) and 30% – 28%, OR 0.92 (0.68 – 1.23), respectively).

Opposite, mental health outcomes were found to ameliorate, with rates of anxiety/depression dropping from 33% – 11% (OR 0.24 (0.17 – 0.35)) and PTSD from 5% – 2% (OR 0.44 (0.21 – 0.95)).

Respondents aged < 40 had a larger improvement in anxiety/depression symptoms from the transit period in Lebanon to the early post-migration period compared to those above 40. Few years of stay in Lebanon was also an effect modifier predicting larger improvement in mental health over time. Finally, individuals who had non-legal status while staying in Lebanon displayed a greater reduction in PTSD symptoms compared to those with legal status in the transit country before resettlement in Europe.

Trajectories of prevalence proportion of main outcomes highlighted that most refugees reported none of the assessed health complaint at either timepoints. **Figure 9** displays the trajectory of individuals reporting symptoms compatible with anxiety/depression. Only 16 (5%) acquired a symptom load above threshold for anxiety/depression, while 96 (27%) improved from these conditions.

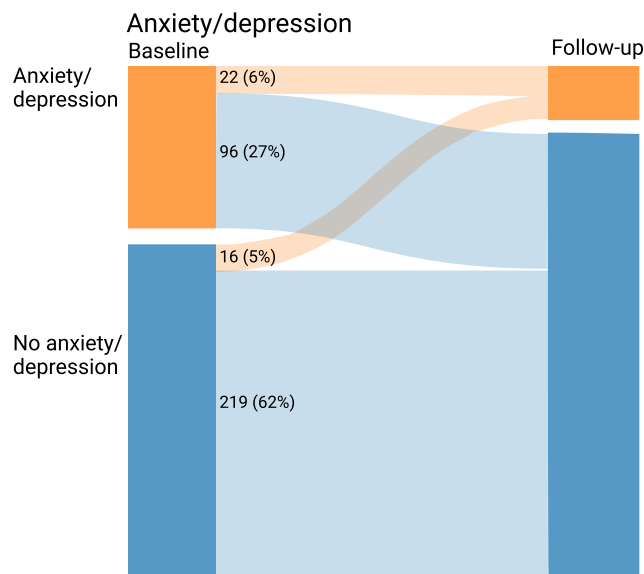


Figure 9. Trajectories of individuals reporting/not reporting symptoms indicating anxiety/depression at baseline and follow-up (modified section of figure 2 in paper II.)

9.3 Synopsis of paper III

As shown in paper I and II, pain disorders and mental health problems represent a significant burden of disease among refugees. In paper III we aim to examine the temporal interrelatedness between chronic pain and mental health problems, their association with migration related factors as well as their pharmacological treatment among refugees. The analyses in paper III are based on survey data from the same sample of Syrian refugees ($n=353$) of which paper II is based on.

Although we found that most of the Syrian refugees in this cohort recovered from mental health problems from the transit to the early resettlement phase, a few displayed persisting health problems at follow-up, in which chronic pain and mental health problems were intertwined with each other (**figure 10**) and a range of post-migration stressors.

Most migration related stressors were more closely associated with both chronic pain and mental health problems in the resettlement phase compared to the transit phase. Interaction analyses revealed that the association between chronic pain and reported poor availability of information and the association between poor mental health and poor personal relationships, poor support from friends, poor safety, poor economy, and poor availability of information, respectively, varied significantly according to migration stage (transit or early resettlement).

In parallel, the association between chronic pain and anxiety/depression detected in the follow-up (adjusted risk ratio (ARR) 1.5 (1.0 – 2.2)), was not seen at baseline (ARR 1.1 (0.8 – 1.5)). Further, we observed a significant association between chronic pain and PTSD as well as chronic pain and poor sleep at follow-up, but not at baseline. In interaction analyses we found that migration stage (transit or early resettlement) acted as an effect modifier of the association between chronic pain and poor sleep in the fully adjusted models, but there was no significant interaction for symptoms of anxiety/depression or PTSD.

Anxiety/depression at baseline significantly predicted chronic pain at follow-up among those *not* reporting chronic pain at baseline. However, neither symptoms of PTSD nor

poor sleep at baseline were shown to predict chronic pain at follow-up in analyses stratified by pain status at baseline.

Finally, we evaluated reported uptake of pharmacological treatment for pain disorders and mental health problems. Daily use of analgesic among those with chronic pain was reported by 21% at baseline and 29% at follow-up, but the increase was not significant. Among those with symptoms of anxiety and/or depression, no one reported to use antidepressants regularly neither in Lebanon nor after resettlement in Norway.

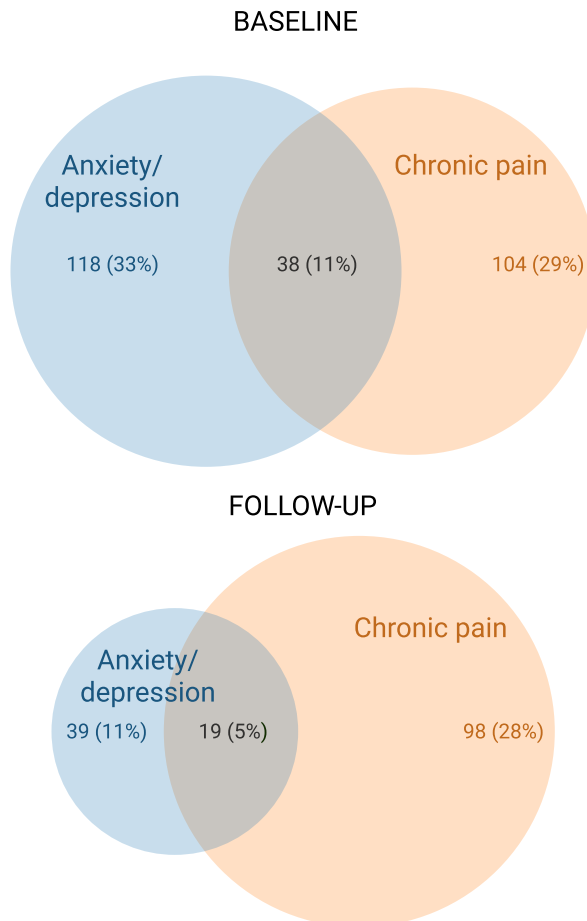


Figure 10. Venn-diagram displaying comorbid chronic pain and anxiety/depression at baseline and follow-up.

10 Discussion

The studies presented in this thesis have sought to expand current knowledge of changes in health and use of medication among forcibly displaced individuals along their migration trajectories. Further, the studies have explored migration related modifiers of health outcomes and interrelations between somatic and mental aspects of health in a temporal lens. In the following, I will discuss our major findings and their interpretation in the context of prevailing evidence and theories of migrant health (10.1) as well as methodological concerns related to the studies conducted (10.2).

10.1 Interpretation

10.1.1 Improving health - with some exceptions

The low levels of NCDs observed both at baseline and follow-up, may be explained both by the healthy migrant effect as well as the young median age of our study population. Studies from countries neighbouring Syria have found that about half of refugee households have a member with one or more NCD,^{94, 95} and report NCD prevalence rates in the range 22-29%^{50, 51} compared to 9-12% in our data. One study compared Syrians in Lebanon with the resident population and found lower prevalence of NCDs among the refugees.⁹⁵ To compare NCD in our study population with the Norwegian general population, the large difference in age composition between these populations must be taken into consideration. Turning to communicable diseases, the single case of tuberculosis in our sample is well in line with the modest incidence rate of tuberculosis in Syria, estimated to 19 per 100 000 inhabitant according to the World Health Organization.⁹⁹ Nevertheless, sentiments of refugees as carriers of exotic infectious diseases have been a resistant fallacy in the public in receiving countries.¹⁰⁰ A narrow focus on infections in public health strategies towards newly arrived refugees from this region may distort attention away from more pressing health

challenges.³ Reassuringly, acknowledgement that infectious disease is not a major health challenge among most displaced populations is gaining support among European officials.⁹

In our material we found that around three in ten participants report chronic pain both at baseline and follow-up (**figure 11**). Comparing this figure to previous research is challenging, as the bulk of literature on pain in refugees concern either single cases (i.e. ‘*Syrian man with abdominal pain*’⁵⁶) or selected groups of refugees such as torture survivors or PTSD patients.¹⁰¹⁻¹⁰³

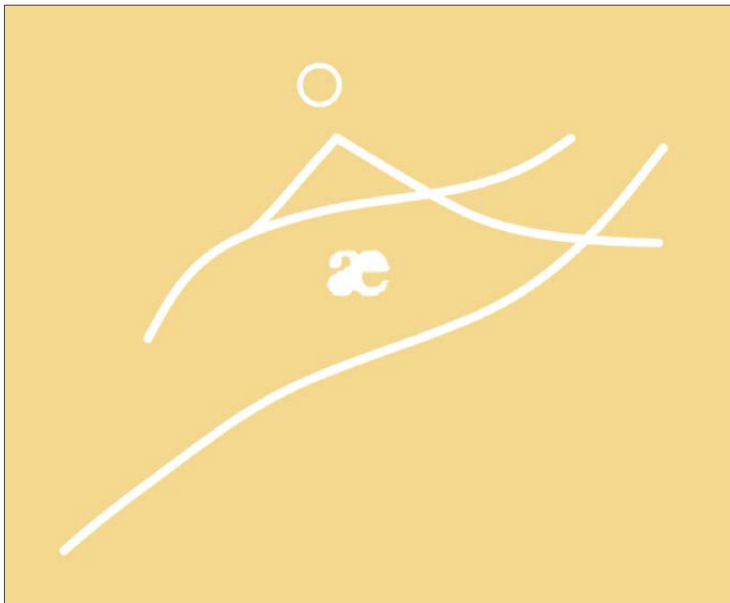


Figure 11. Contribution to the CHART study’s logo competition among Syrians in Bergen by Falah Issa. He writes this about the design: ‘This [Norwegian] letter is what you say in Arabic when you feel pain and it is same in Norwegian’ (my own translation from Norwegian to English). Printed with permission from the designer.

³ All asylum seekers and refugees to Norway, independent of which country they come from, are obliged by the law to undergo tuberculosis screening within two weeks after arrival (chest x-ray for all and IGRA blood test if origin in high-endemic country), while general health assessment is voluntary.

Some studies describe somatisation in refugees in which psychological distress is experienced and communicated as medically unexplained symptoms, frequently in the form of pain such as headache or abdominal pain.¹⁰⁴ In a large sample of people within 15 European countries chronic pain was reported by two in ten, and three in ten among Norwegian responders.¹⁰⁵ However, the mean age of respondents in this study was 50 years. Overall, if age is taken into the equation the levels of chronic pain among the Syrian refugees in our studies appears to be high.

Our studies demonstrate empirical evidence of decreasing mental health problems from the transit to the early settlement phase among resettlement refugees in line with the *honeymoon hypothesis*. These findings resonance well with other parts of the CHART study observing improvement also in self-rated health and quality of life in the same cohort over the same time span.¹⁰⁶ Previous research has shown heterogeneous results in terms of mental health development over time among forcibly displaced persons. One string of literature shows *stable* levels of mental health problems in the initial phase after resettlement. Studies among refugees in Australia found persisting high levels of mental ill health and poor self-rated health from baseline 3-6 months after arrival throughout a three-year follow-up period,^{107, 108} and a study assessing Iraqi refugees upon arrival in the US and after one year showed stable levels of PTSD.¹⁰⁹ Other empirical findings point to *worsening* mental health outcomes during the early post-migration phase. A Norwegian study assessing refugees 1-32 months after resettlement and after three years, found steady rates of anxiety and depression but increase in PTSD symptoms,¹¹⁰ while a study among refugees from Kosovo settled in Sweden saw increasing rates of depression between arrival and the 1,5-year follow-up, with higher rates among those who remained in Sweden compared to those who repatriated.¹¹¹ Yet, other studies find *alleviation* of mental health symptoms during the early post-migration phase. A study among asylum-seeking minors resettled in Germany found amelioration of mental health symptoms between baseline two years after resettlement and at the one-year thereafter follow-up.¹¹² In a study among Vietnamese refugees in Norway psychological distress decreased significantly after 23 years of resettlement and, interestingly, the trajectory of symptoms over the first three years was shown to predict long-term mental health

outcomes.¹¹³ All these longitudinal studies collect data confined to the post-migration phase, encumbering comparison with our data which present changes from the peri-migration to the early post-migration phase.

Do our post-resettlement prevalence rates of mental ill health agree with findings in other studies among Syrians in Northern Europe? Although not a peer-reviewed source, a recent report on mental health among Syrian refugees in Norway present levels of anxiety/depression and PTSD far above findings in our follow-up data (anxiety/depression 36% vs. 11% and PTSD 35% vs. 2%).⁶¹ However, the cut-offs used in this report differ from the standard cut-offs used in our analyses, both for anxiety/depression (HSCL score 1.80 vs. 1.85) and PTSD (HTQ score 2.06 vs. 2.5). Further, more than four out of five of respondents in the survey presented in the report had a residency time in Norway exceeding two years. Thus, differences might also be explained both by theories of the exhausted migrant and inclusion of Syrians who arrived as asylum seekers or family reunited. The 12-month prevalence of mental ill health in the general Norwegian population has, in comparison, been estimated to 4-11% for depressive disorders, 6-23% for anxiety disorders and 1-2% for PTSD.^{114, 115} Unlike the general population a substantial share of our respondents have been exposed to potential traumatic events, perhaps indicating resilient features of the study population.

10.1.2 Associations between migration related risk factors and health

Few studies look at associations between migration related risk factors and pain symptoms. Although several authors describe chronic pain among PTSD patients,¹⁰³ we are not aware of other researchers linking trauma exposure and chronic pain in a non-clinical refugee population. In contrast, the association between traumatic experiences and mental ill health demonstrated in paper I is well known.⁴² In line with previous studies of family separation, migrating alone was also associated with poor mental health.¹¹⁶

The improvements in mental health from baseline to follow-up were enhanced by younger age and factors related to length of stay and legal status. Better mental health

outcomes among the young early after resettlement cohere with previous research in refugee populations.^{19, 108} Explanations for this finding may include greater neuroplasticity and ability to adapt to changing contexts in the young along with a more pervasive sense of loss, both of social network, property, positions, and homeland, in those of higher age. Other studies showing that short stay in transit settings is beneficial for mental ill health after resettlement have not been identified, but I find it plausible that protracted stay under uncertain and often socioeconomically harsh condition may have long-term consequences. Finally, non-legal stay in Lebanon was found to increase alleviation of post-traumatic symptoms. Our finding echoes literature demonstrating health differences between displaced persons with or without determined claims for refugee status,¹¹⁷ and I thus argue that that the relief of legal residency may have health implication.

In paper III we find that most migration related stressors assessed, such as poor social support, poor safety, poor economy, and poor information, were more closely associated with both chronic pain and mental health problems after resettlement as compared to the transit phase. Reporting stressors, i.e., poor economy was common in transit, and the number reporting various stressors reduced after resettlement. However, while most refugees were more content after resettlement, discontent with their living condition seemed to be more prominent among those experiencing poor health. Previous refugee mental health research has often relied on a *life events model*, in which mental morbidity is interpreted as distress resulting from traumatic experiences of war, but this model fails to capture the joint effect of multiple stressors beyond the post-traumatic dimension.¹⁹ Our findings are reflected in an emerging body of literature emphasizing post-settlement stressors as potentially more important to mental health after resettlement compared to pre-migratory conditions.^{19, 21}

In joint, this thesis confirms the inherent health risk of trauma experiences and solo migration, yet highlight that post-migratory stressors probably deserve higher attention as important determinants of health in refugees (**figure 12**).



Figure 12. Syrian migrants walking along the road after crossing the border to Hungary, August 2015. Photo: Bernadett Szabo, Reuters, NTB Scanpix. Re-print with permission.

10.1.3 Interlinkages between somatic and mental health

A small group of our respondents displayed persisting mental health problems at follow-up, among whom chronic pain and mental health problems were associated. Somatic and mental health problems are known to be interrelated and affected by social circumstances, often described in terms of the *biopsychosocial model* presented by Engel in 1977.⁷¹ The *mutual maintenance theory* describes how post-traumatic stress symptoms and pain constitute a reciprocal perpetuating relationship, attributed both to shared vulnerability between the conditions and their ability to mutually exacerbate each other.¹¹⁸ Assessments of mental health and co-morbid complaints of pain in refugees are in large limited to cross-sectional studies among clinic-based populations, especially torture survivor patients,^{101, 103, 119} while data from non-clinical settings is scarce. Thus, our findings expand current understanding of the temporal interlinkage between two rather common health challenges among refugees, chronic

pain and mental health problems, and should encourage holistic treatment interventions.

10.1.4 Gaps in pharmacological care?

'In the past mass influx situations there was a high mortality rate during the acute phase of emergencies, mainly fuelled by epidemics, the exacerbation of endemic infectious diseases and acute malnutrition. In this situation today, however, much of the excess morbidity and mortality result from the exacerbation of existing chronic diseases (such as cardio-vascular, hypertension, diabetes, tuberculosis, and HIV). In these cases, treatment continuation becomes essential' write two experienced leaders in Médecins Sans Frontières.⁵ Previous research has identified severe gaps in access to medication for chronic conditions among refugees in countries neighbouring Syria, mainly due to high out-of-pocket expenditures.^{50, 120} We have described that worryingly few of those with NCDs use relevant medication (i.e. antihypertensives, antithrombotic and cholesterol lowering drugs among those with cardiovascular disease and antidiabetics among those with diabetes). This finding calls for innovative public health approaches and interventions to protect continuity of care – not just access - for NCDs in settings of conflict-driven exodus. Further, around one in four of those suffering from chronic pain use analgesics daily, while none of those with mental health symptoms indicating clinically relevant anxiety and/or depression use antidepressant daily, neither at baseline nor at follow-up (paper III). This latter finding warrants careful interpretation, as we lack a gold standard indicating whom of individuals with pain or mental health problems need pharmacological therapy. Importantly, alternatives to pharmacological treatment may also be restrained. Inadequate utilisation and barriers to non-pharmacological mental health care services among refugees in Europe and the Middle East is broadly documented.^{66, 121, 122}

10.1.5 Mechanisms behind temporal changes in health

While each step along the migration journey of forcibly displaced persons may foment health problems, the majority overcome these challenges in a salutogenetic manner. How do most of the refugees manage to stay healthy despite their strenuous

experiences? Or in the words of Antonovsky: “Whence the strength?” According to the theory of salutogenesis two elements are brought forward as vital: *predictability* and *hope for the future*. I argue that these and other elements of the *sense of coherence* framework may act upstream to, at least partly, explain our findings and further constitute important keywords in public health strategies for sustained wellbeing after resettlement.

The improvements in mental health over our one-year observation period echo the postulated *honeymoon effect* in the initial phase after resettlement. While to date poorly examined among refugees, some of the euphoric notions described among Norwegian sojourners to the US³² may also apply to resettlement refugees short time after arrival. However, emotions in the early resettlement phase may be highly conflicting, as described by Gonsalves.¹²³ Perhaps more apt than euphoria, I suggest that the explanation of improving health may also lie within the increased *predictability* of safe resettlement combined with renewed *hope for the future*.

How should we expect the health of our respondents to develop over time? Our data may not be used for forecasting. However, the theories of the *wear-off* component of the healthy migrant effect, *exhausted migrant* and *allostatic overload* all point in the same pessimistic direction towards progressively worse health. Also, poor mental health outcomes among participants recruited in Norway (study population B), with a mean length of stay of two years, were substantially higher than poor mental health outcomes among those recruited in Lebanon (study population A) after only one year in Norway. However, we do not know whether study population B went through a ‘honeymoon period’ with subsequent health decline.

Some migration related factors associated with improved health outcomes have been identified in this thesis. Can we successfully prevent deterioration among the healthy and simultaneously increase wellbeing among those experiencing poor health in the early post-migratory phase? More on this issue in chapter 12 on Future perspectives.

10.2 Methodological considerations

Some important methodological issues of the conducted studies warrant consideration. Below I reflect upon limitation in design before turning to potential sources of bias.

10.2.1 Limitation of study design

Although this thesis encompasses a longitudinal study (paper II and III) it only captures a rather limited time span of the participants' migration path. Adverse health effects of migration related stressors might not be evident until many years into the resettlement phase, and to capture these long-term outcomes would require follow-up for decades. A life-course perspective has been recommended for a comprehensive analysis of the health implications of migration related stressors.^{17, 18} Although aspirations of an extended follow-up period was curtailed by the limited time and funding frame in this project, opportunities to assess long-term outcomes may emerge later.

A second limitation relates to the lack of a full population-based sampling frame and thus deficient information about those who were eligible but not invited at baseline. In Lebanon, some Syrian refugees are registered as legal residents by the Lebanese authorities, but up to 80% of the refugees do not have a valid residence permit, frequently due to the yearly cost of renewing legal residency documentation.¹²⁴ UNHCR's registration of Syrian refugees in Lebanon were suspended in May 2015 on the request of the Lebanese government.¹²⁵ As there is no central registry of all Syrians displaced to Lebanon, it was not possible to obtain a full sampling frame from which a random sample could be drawn. In Norway immigrants who receive a residence permit of at least six months are registered in the National Population Register. Albeit the population registry might be an applicable source of sampling, it does not capture those with temporary residence permits, like asylum seekers. Given the constraints of available registries combined with our ambitions to approach all eligible individuals in person to increase trust, arenas of compulsory educational activities were chosen as a feasible setting to obtain a proxy to a population-based (or community-based) sample.

Moreover, the longitudinal study (paper II and III) evaluates changes in health among Syrian refugees along their migration path from Lebanon to Norway without comparison to any control group. To counter this problem one option could have been to recruit and follow-up persons who never left Syria. However, recruiting left behind or internally displaced individuals to survey participation amidst the brutality of a civil war would precipitate both practical and ethical challenges. A different possibility would have been to recruit Syrians subjected to different migration trajectories. Indeed, our research protocol included a plan to recruit Syrian refugees on the southern shores of Europe destined for relocation to Norway through the EU-Relocation scheme.¹²⁶ However, by the time we received ethical approval to start recruiting these migration routes were truncated by an increasingly hostile political climate throughout Europe, including Norway. Accordingly, if forcibly displacement is considered the main *exposure* variable in this project, we are not able to evaluate whether the effect on health *outcomes* differ between those with a migration path from Lebanon to Norway compared to those undergoing other pathways. However, the displacement experience was decomposed into several elements of migration related exposure (i.e., solo migration, detention, lack of residence permit) of which our cohort encompasses both *exposed* and *unexposed* individuals.

Beyond these shortcomings, this thesis encompasses a close approximation to a population-based sample of people displaced across borders, often categorised as a ‘hard to get’ population in terms of recruitment to public health research. While longitudinal studies assessing health among forcibly displaced migrants usually establish their study populations post-migration, novel to the field this study describes a cohort established in the peri-migration period with follow-up in the early resettlement period.

10.2.2 Potential sources of bias

With an emphasis on sampling, recruitment, and data collection, I will in the following evaluate the risk of selection bias and response bias in this project.

10.2.2.1 Risk of selection bias

Are ill and healthy Syrians proportionally represented? Selection bias refers to bias introduced by factors affecting sampling and study participation.¹²⁷ A potential source of selection bias in the studies in this thesis may stem from recruitment in connection with educational activities. The educational programs were mandatory, yet in some sessions a few persons were reported to be absent⁴ due to ill-health or child-caring and the programs were not compulsory for those above 55 years of age, neither in Lebanon nor in Norway. Nonetheless, we think the financial incentives conditional on attendance minimize the impact of selection. A large share of studies assessing health among refugees collect data in clinical settings,^{37, 47, 48, 128} with resulting study populations more likely to report health problems. While recruitment in connection with compulsory education does not reach benchmark standard and may suffer from underreporting of health problems in the case of sick leave, it bypasses the challenge of overestimating prevalence rates of disease based on findings from individuals encountering health care facilities. Thus, I suggest that our results may be extrapolated beyond the mere clinical setting.

Are the Syrians recruited in Lebanon (study population A) representative of Syrians in Lebanon in general? The Lebanon-dwelling source population from which we drew our sample were all resettlement refugees with entry permit to Norway. Hence, our source population does not reflect the entire population of Syrians displaced to Lebanon. Refugees offered resettlement under the Norwegian refugee quota scheme are not chosen at random but selected after pre-defined criteria set by The Norwegian Directorate of Immigration. Explicit priority is given to families with children under the age of 18, to women at risk, and to individuals vulnerable because of sexual orientation.¹²⁹ Further, the *'integration perspective'* is underscored, in which refugees evaluated to more easily integrate, i.e. due their professional background, will have greater chance of being selected for resettlement. The resettlement scheme also includes a quota for medical cases, typically 20 cases each year, and increased to 60

⁴ See flow chart in figure 9 for details.

cases in 2016 and 2017.^{130, 131} Refugees obtaining entry permit on the grounds of their medical case might or might not be present at the education programs – depending on the severity of their condition. Overall, study population A has all undergone a particular migration trajectory from Lebanon to Norway, and findings may not be applicable i.e., to those undertaking often hazardous, clandestine journeys through Europe to apply for asylum in Norway.

Are the Syrians recruited in Norway (study population B) representative of Syrians in Norway in general? Among the individuals recruited in the two educational centres in Norway a fraction was resettlement refugees. We investigated the possibilities of selection bias based on which resettlement refugees are settled in which municipalities. Both representatives among the immigration authorities and officials at municipality-level were approached to examine whether some categories of resettlement refugees were more likely to be settled in our two study site municipalities. In general authority representatives stated that refugees are sought settled close to any family members if desirable, those deemed vulnerable (i.e., sexual minorities) are more likely to be sent to larger municipalities, and in some instances, municipalities might report disinclination to receive refugees with special needs (i.e. physical disabilities) due to constraints in public services and facilities. Both recruitment sites were city municipalities, hence a larger share of LGBT minorities and disabilities might be expected. In Norway we additionally recruited participants in one of five governmental *Integration Reception Centres*. They offer more intensive educational activities than ordinary asylum reception centres. The most motivated individuals may have been more likely to apply to be placed at this reception centre. However, the centre leader and officials working with the settlement of asylum seekers misdoubted that individuals sent to this centre were aware of this difference (personal communication).

The high response rates obtained in the studies counterweight some of the above-mentioned challenges of representativity. Acknowledging that successful recruitment depends on knowledge and trust among the eligible population, we attribute the high response rate at baseline and the modest attrition at follow-up to the CHART project

group's investments in acquaintance with the Syrian refugee community. Trust building may have benefitted from the composition of the project group including both researchers with refugee background and researchers of Syrian origin (**figure 13**).



Figure 13. Participants completing the CHART survey in Nygård school, Bergen, Norway 2018. Photo: Elisabeth Marie Strømme. With permission from participants.

10.2.2.2 Risk of response bias

Response bias refer to bias introduced by factors that direct the responses of participants away from an accurate or truthful response.¹²⁷ The studies in this thesis exclusively depend on self-reported data which are known to have inherent weaknesses related to social desirability bias and acquiescent (or agreement) responding. Recent scholars have, for instance, found that the prevalence of depression tend to be higher when using self-report measures compared to results from diagnostic interviews.¹³² However, among our respondents an opposite-acting factor might have been in play when answering questions on mental health. Some of our participants expressed fear that disclosure of mental health problems would result in difficulties

obtaining permanent residence permit in Norway. Thus, the risk of over-estimating prevalence rates due to inherent issues of self-reporting may have been counteracted to some extent by fear of reporting.

Another phenomenon related to response bias, known as the *Hawthorne effect*, refers to change in behaviour by individuals in response to the awareness of being observed as research subjects.¹²⁷ In the longitudinal study we deliberately chose to change the mode of data collection between baseline and follow-up from assisted self-completion of paper questionnaires to structured telephone interviews to prevent selection bias related to attrition. We obtained a satisfactory low attrition rate of 24%, but the follow-up survey may be more affected by a social desirability to answer 'correctly', by acquiescent responding to express thankfulness and perhaps the Hawthorne Effects, i.e., related to sensitive questions such as mental health.

10.2.3 Generalisability

The degree to which findings in this thesis may be transferred to a broader context warrant some reflections. The Syrians recruited in Lebanon were all refugees selected for resettlement. While results may be transferable to other Syrian refugees resettling in high-income countries, extrapolation to asylum seeking or internally displaced Syrians may not be straight-forward. Indeed, previous research has highlighted health disparities according to legal status.^{63, 117} Are results generalisable to refugees of other origins than Syrian, residing both in the Middle East, in Northern Europe and elsewhere? I have previously noted substantial heterogeneity in reported prevalence rates of mental health problems among forcibly displaced, which perhaps indicate poor quality of studies, but may also underscore the utmost context-sensitivity of research among moving populations. While prevalence rates are likely to vary based on epidemiology in the country of origin, characteristics of the migration journey and conditions of the reception, the mechanism of a temporal changes in health along the migration trajectories described in this thesis may apply more widely to refugees transferring from a conflict-near setting to a high-income country.

11 Conclusion

While this thesis affirms mental health problems as a central health concern among refugees, chronic pain is lifted forward as a common challenge with relevance both for wellbeing and integration. Somatic health outcomes remain stable from the transit phase in Lebanon to the early resettlement phase in Norway. Concurrently, the most prominent finding of this thesis is a marked improvement in mental health over our one-year observation period echoing the postulated *honeymoon effect* in the initial phase after resettlement. Among those who experience persisting poor health into the early resettlement phase, chronic pain and mental health problems are interrelated, calling for holistic approaches.

Several migration related risk factors show association with poor mental health outcomes or a deteriorating mental health trajectory. Exposure to trauma in the pre- or peri-migration phase is associated with adverse health effects, and long stay in transit settings restrain improvements in mental health over time. Importantly, post-resettlement experiences of poor social support, poor safety, poor economy, and poor information, are more closely associated with mental health problems in the early post-migration phase compared to the transit phase, highlighting the health implication of the reception setting upon arrival to a new country.

The thesis identifies low coverage of pharmacological treatment for chronic conditions, such as cardiovascular disease and diabetes, as well as a possible gap in use of antidepressants among those with symptoms compatible with anxiety or depression. This finding calls for public health planners and clinicians to work towards reducing barriers to pharmacological treatment and prevent discontinuity in care.

Overall, to protect and improve the health of forcibly displaced individuals, receiving countries must consolidate efforts to alleviate the burden of post-migratory stressors. Further, stewards of health care systems should incorporate concerns for temporal changes in health into the planning of health care services towards newly arrived refugees and asylum seekers.

12 Future perspectives

12.1 Policy implications

With unprecedented numbers of forcibly displaced individuals worldwide, largely fuelled by the Syrian civil war, the health consequences of forced migration have become a central part of the global public health debate. Simultaneously health officials in receiving countries have expressed deep concerns over their national health systems ability to accommodate the health care needs of the newcomers.^{10, 15} However, research into the health status of the arriving populations has been scarce. Although not groundless apprehensions, the evidence brought to the table in this thesis indicate that recently arrived resettlement refugees will most likely not strain the health care systems, in terms of cost and capacity, as much as feared. Importantly, the dimension of the challenges is immensely diverse between crowded Lebanon hosting more than 900.000 Syrians⁶ and a country like Norway hosting only around 31.000 Syrians⁹⁸ in a 36 times larger area and with much larger financial muscles.

This study has shown the importance of migration related stressors and I argue that modifiable stressors should be thought of as *mediators of change*. The best opportunities for intervening policies in recipient countries are found among post-migration stressors. Acknowledging the health implication of risk factors outside health care system,⁶³ the World Health Organization states . '*Uncertainty or insecurity related to the outcome of asylum claims, housing, family separation, employment prospects and future expectations all impact the health of new arrivals regardless of prior traumatization*'.³⁸ At the point-of-delivery of health care to the refugee patient we should consider to screen for others risk factors besides the traditional questions on trauma exposure. At the policy level, receiving countries should intensity efforts to alleviate the intersectional burden of stressors to preserve and improve the health of forcibly displaced populations.

While acute infections and injuries are known to dominate the acute stages of flight, this thesis demonstrates that chronic pain and mental health problems are common and often interlinked challenges among refugees. NCDs are less common, mainly because

refugees arriving in Europe on average are young. However, we find that among those with NCDs there seem to be a gap in use of regular medication along the migration route. Much of the approach to the large influx of new inhabitants has been characterised by emergency measures.¹⁶ Now, six years on from the 2015 ‘refugee crisis’, time is overripe to move from emergency response to long-term inclusion policies including access to comprehensive care and medication for chronic conditions. A general health assessment of asylum seekers and refugees shortly after arrival, offered in some countries including Norway⁵, has been found cost-effective in some instances and may serve as a useful introduction to the local health system.¹³³ However, our findings, mirroring the honeymoon effect, indicate that at least *parts* of such screening, like assessment of mental health, should be considered deferred to capture health challenges manifesting at a later stage.

12.2 Research implications

Research into the magnitude of various health challenges and their evolution along the migration trajectories is relevant for decision makers in health both in countries hosting refugees transiently and as long-term destinations. This study looks at changes in health as Syrian refugees traverse international borders with a short follow-up time. Further exploration of longitudinal changes in both somatic and mental health among refugees from different countries of origin, undertaking different migration routes, should be investigated in prospective observational studies with extended follow-up time.

Our findings might indicate underuse of pharmacological treatment among NCD patients, while the role of drugs among those with chronic pain and mental health problems needs further clarification. Treatment uptake for chronic conditions should be closer examined both in registry studies and qualitative inquiries.

⁵ In Norway, the Norwegian Directorate of Health recommends the municipalities to offer all newly arrived asylum seekers, refugees and family reunited a general health assessment approximately three months after arrival. <https://www.helsedirektoratet.no/veiledere/helsetjenester-til-asylsokere-flyktninger-og-familiejenforente>

This thesis has identified common health challenges among Syrian refugees, such as chronic pain and mental health problems, as well as important post-settlement factors associated with these outcomes. The CHART study encompassed two randomized controlled trials investigating the effect of a group-based physiotherapy intervention and a group-based self-help intervention on both pain and post-traumatic symptoms.^{134, 135} While the CHART project group harvested many interesting experiences from these interventions,⁶ the conduction of these trials also highlighted the complexity of planning and tailoring health care services for refugees. Health care delivery to individuals displaced due to conflict and persecution may be challenging⁶⁵ and the research community should continue to suggest and evaluate possible interventions both within health promotion, disease prevention and treatment of ill health in low- and middle- as well as high-income setting.

Overall, interdisciplinary approaches acknowledging the health implications of social relations and living conditions as well as interlinkages between somatic and mental health problems may be promising areas of investigation.

⁶ For detailed descriptions and outcomes of these trials please consult the cited articles.

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14 List of appendices

Paper I

Paper II

Paper III

Ethical approval from the Regional Committee for Medical and Health Research
Ethics of South East Norway (REC South East Norway)

Informed consent form used in study population A at baseline and in study population
B (in English, available in Arabic upon request)

Informed consent form used in study population A at follow-up (in English, available
in Arabic upon request)

CHART Questionnaire 1 used in study population A at baseline and in study
population B (in English, available in Arabic upon request)

CHART Questionnaire 2 used in study population B at follow-up (in English,
available in Arabic upon request)

RESEARCH ARTICLE

Open Access



Health status and use of medication and their association with migration related exposures among Syrian refugees in Lebanon and Norway: a cross-sectional study

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Abstract

Background: The health of forcibly displaced individuals changes along their migration path and estimates of disease burden are essential to develop health care policies and practices adequately corresponding to their health care needs. This study aims to describe the health status and use of medication among Syrian refugees in two different migration phases: in a transit setting and in a recipient country. Further, we aim to investigate the associations between migration related exposures and both chronic pain and mental health among Syrian refugees.

Methods: This is a cross-sectional study based on survey data collected among 827 adult Syrian refugees in Lebanon and Norway during 2017–2018. The survey instrument included items measuring somatic status (including chronic pain), mental health (using the HSCL-10 and HTQ items), use of medication and migration related exposures. We used descriptive statistics to calculate standardised prevalence proportions and regression analyses to study associations between migration related exposures and health outcomes.

Results: The response rate was 85%. The mean age in the sample was 33 years and 41% were women. Half of the participants reported that they had never had any health problems. The prevalence of non-communicable diseases was 12%. Headache and musculoskeletal complaints were the most prevalent conditions reported, with 30% reporting chronic pain lasting for more than six months. Symptoms indicating anxiety and/or depression were presented by 35%, while 7% revealed symptoms compatible with post-traumatic stress disorder. Among those reporting non-communicable diseases a substantial share did not seem to receive adequate treatment. Trauma experiences were associated with both chronic pain and anxiety/depression symptoms, and the latter were also associated with migrating without family members.

Conclusions: Migrant-friendly public health policies and practises should acknowledge migration related risks, address discontinuity in care of chronic conditions and target common complaints such as chronic pain and mental health problems among forcibly displaced individuals.

Keywords: Refugees, Transients and migrants, Health status

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Background

Refugees are susceptible to potential adverse health effects resulting from their vulnerable life situation. The range of health related risks facing people on the move includes stressors such as unfamiliar surroundings, uncertain prospects and factors related to financial constraint like poor nutrition and sanitary conditions [1, 2]. Furthermore, the health care services offered along their migration trajectories are often arbitrary, fragmented and difficult to access [3].

By the end of 2017, an unprecedented figure of 68.5 million individuals were forcibly displaced worldwide [4]. Some refugees have a fairly swift migration journey before arrival at their resettlement destination. However, others are on the move for a long time or stay in temporary settings, often in neighbouring countries, for years. Most of the refugees entering Europe in the last years have fled from the atrocities of the civil war in Syria. An estimated 1 million Syrian refugees registered by the United Nations High Commissioner for Refugees (UNHCR) are living in neighbouring Lebanon [4]. Although Lebanon has not ratified the 1951 Refugee Convention, it hosts the largest per capita refugee population in the world, where one in four people is a refugee [4]. Since the beginning of the conflict approximately one million Syrians have moved to Europe as asylum seekers or refugees [5] and at the beginning of 2018 about 26,000 Syrians lived in Norway [6].

The public health situation of pre-war Syria was characterized by an increasing burden of non-communicable diseases (NCDs) such as obesity, diabetes and coronary heart disease, and decreasing levels of infectious disease [7]. However, the devastation of war may have extensive impact on the epidemiological profile of a population [7]. Forcibly displaced individuals frequently experience profound psychological distress, which may manifest as mental disorders but also as somatic complaints such as pain [8, 9]. Data on the health of displaced Syrians who reside in transit situations are scarce and only a few scientific publications report on the health conditions of the refugees dwelling in the countries bordering Syria [10–13]. These studies suggest a high load of mental disorders and disruptions in the continuity of care for chronic disease, but do not offer more comprehensive epidemiological profiles of the Syrian refugees. To our knowledge, there are no estimates of disease burden among newly arrived refugees and asylum seekers in a Norwegian context. Overall, the morbidity patterns and use of medication among newly arrived forcibly displaced immigrants in Europe remain largely unexplored.

To ensure evidence-based policies and practises, transit and receiving countries need better comprehension of the health complaints and diseases affecting non-settled and newly resettled forcibly displaced individuals. Identifying key factors associated with adverse health outcomes among

refugees can further aid the development of preventive measures, and enhance clinical evaluations, diagnostic procedures and treatment interventions corresponding to their needs. In this article we aim to 1) describe the health status and use of medication among two groups of Syrian refugees; one in transit in Lebanon and one shortly after arrival in Norway and 2) study the associations between migration related factors and both mental health and chronic pain among Syrian refugees.

Methods

This cross-sectional study is based on survey data collected during 2017–2018. We recruited Syrian refugees aged 16 and above under protection by the UNHCR in Lebanon, awaiting resettlement in Norway. We also recruited early post-migration phase refugees and asylum seekers who had arrived in Norway by various routes; either as resettlement refugees, as asylum seekers on the EU-relocation scheme [14] or as asylum seekers passing through Europe or European Russia on often clandestine, perilous journeys.

The terms *refugee* and *asylum seeker* will be used interchangeably in this article as nearly all Syrian asylum applicants to Norway were granted residency during 2017–2018 [15].

In Lebanon, all adult Syrians attending mandatory educational activities offered by the International Organization for Migration were invited to participate. In Norway we approached Syrian refugees in connection with mandatory educational activities at one asylum centre, where all adults present were invited to participate, and at two educational centres for newly arrived immigrants, where we invited a sample including participants from all educational levels.

A questionnaire in Arabic was self-completed on-site. Trained staff aided those with low literacy level and Kurmanji translators assisted Syrian Kurds with limited Arabic skills. Medical staff was available to respond to any sign of re-traumatization during assessment. Participants in Lebanon received a small monetary recompense.

The overall response rate was 85% (827 of 972 invited); 93% (506 of 544 invited) in Lebanon and 75% (321 of 428 invited) in Norway. The most frequent reasons for non-participation when stated were illness, childcare, lack of interest or fear of influence on legal status.

The project was approved by the Regional Committee for Medical & Health Research Ethics of South East Norway, reference 2017/377. All enrolled participants received information about the study and signed a consent form in Arabic.

Survey instrument

The survey included questions on somatic complaints, mental health and use of medication as well as sociodemographic and migration related factors. Questions on

general health status and use of medication were obtained from The Nord-Trøndelag Health Study (HUNT) [16] and the Oslo Health Study (HUBRO) [17]. The questions from the HUNT study inquire whether respondents suffer or have suffered from a range of health conditions including NCDs and chronic impairments that have lasted more than 1 year and impede daily life. Our NCD variable combines cardiovascular diseases, chronic respiratory diseases, diabetes and cancer. The questions from HUBRO map the extent and frequency of use of various drugs. Chronic pain was assessed by a validated question from the International Association for the Study of Pain, which defines pain lasting for more than 6 months as chronic [18]. Mental health was assessed by the validated instruments Hopkins Symptom Checklist (HSCL-10) [19, 20] and the Harvard Trauma Questionnaire (HTQ) [21, 22]. These instruments have satisfactory psychometric properties in Arabic-speaking populations and have regularly been employed in surveys among refugees [22–24]. HSCL-10 rates the extent to which symptoms of anxiety and depression have distressed the respondent during the last week on a 4-point Likert scale. We used mean item score 1.85 as threshold for psychological distress (range 1–4), predicting a clinically relevant anxiety or depression [20]. HTQ rates the burden of post-traumatic stress symptoms using the same time frame and response scale as HSCL-10. We used mean item score 2.5 as cut-off for post-traumatic stress disorder (PTSD) (range 1–4) [21].

The Single General Trauma Item was used to measure exposure to traumatic events relating to the experience of forced migration [25]. To identify other exposures related to the migration process, our research team developed seven items to map various aspects of the respondent's migration history: time since flight from country of origin, time since arrival in current country, stay in transit country (ies), time in transit country (ies), solo-migration, detainment during flight and residence permit in current country.

Permissions to use the validated survey instruments were obtained from all copyright holders. The questionnaire, including the HSCL-10 and HTQ instruments and the questions from the HUNT and the HUBRO study, was forward translated from English to Standard Modern Arabic by two double-blinded professional translators before synthesizing and back-translation [26]. Challenging words and phrases were discussed within the translation team and with bilingual health workers. Finally, the questionnaire was piloted among a group of six Syrian refugees in a Norwegian asylum centre.

Analytic approach

We calculated prevalence proportions with 95% confidence intervals (CI). Prevalence proportions were

standardised to the age and gender composition of the Syrian population in Norway by the end of 2017 [6] in order to increase transferability of results. Data collected in both Lebanon and Norway was standardised in the same manner as the participants in Lebanon were resettlement refugees awaiting transfer for Norway. Socio-demographic and migration related exposures are presented as crude prevalence proportions, while all outcomes are presented as standardised prevalence proportions. We ran analyses of both daily and weekly use of drugs, but the latter did not differ substantially from the former and is not displayed here. We performed linear and logistic regression to study the relationship between factors related to forced migration and two outcomes: mental health problems and chronic pain. The explanatory variables time in transit, migrating alone, detainment during flight, lack of residence permit and trauma exposure were chosen to address different aspects of the experience of forced migration. All models are presented both crude and with adjustment for age, gender and country (Norway or Lebanon). The analyses were conducted using STATA/IC software, version 15.1, (Stata-Corp LLC, Texas, USA).

Results

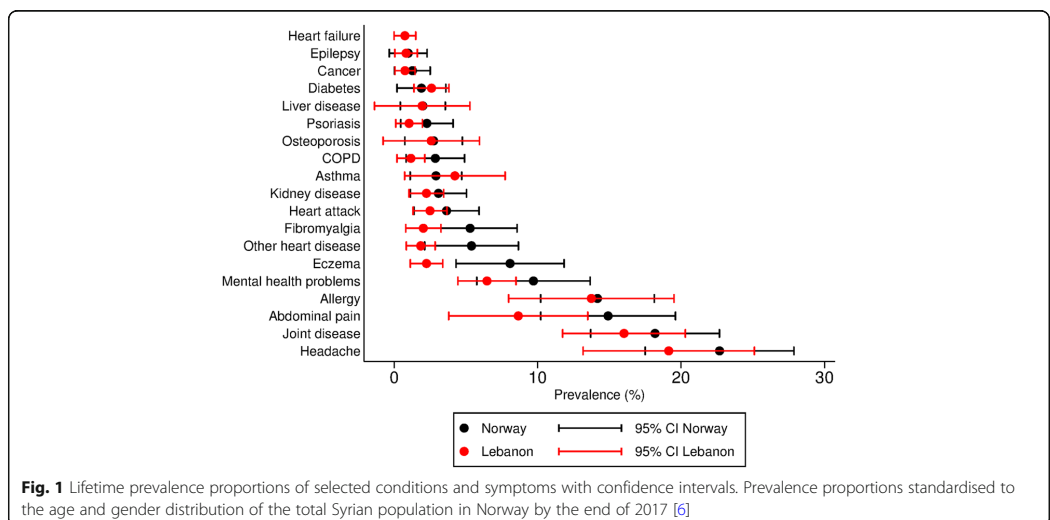
Overall, the study population had a mean age of 33 years (SD 10) with balanced gender distribution in Lebanon (51% women) and a predominance of men in Norway (27% women) (Table 1). The majority were Arabic speakers, with a 12% Kurmanji speaking minority. Respondents had a mean of 9 years (SD 4) of education. The participants had arrived in their current country of residence a mean of 4 years ago (SD 2). One in four reported to have passed a transit country and more than one quarter had migrated alone, although these figures diverged depending on the site. The crude prevalence of reported trauma exposure was 41% (37–44). Other sociodemographic and migration related characteristics are described in detail in Table 1.

Health status and use of medication

About half of the participants reported that they had never had any of the health problems listed in the questionnaire. In both sites, headache was the most prevalent condition reported, followed by joint disorders, allergy, abdominal pain and mental health problems (Fig. 1, additional file 1). The standardised prevalence proportion of NCDs was 12% (10–15). Syrian women more frequently reported musculoskeletal complaints including arthritis, fibromyalgia and other joint disease (22% (17–28) and 32% (22–44) in Lebanon and Norway) compared to Syrian men (15% (11–20) and 17% (12–23) in Lebanon and Norway). There was only one case of tuberculosis and no reports of stroke or brain haemorrhage.

Table 1 Sociodemographic, migration process and trauma related factors

	All N = 827	Lebanon N = 506	Norway N = 321
SOCIODEMOGRAPHIC FACTORS			
Gender (women), n (%)	340 (41)	255 (51)	85 (27)
Age (years), mean (SD)	33 (10)	34 (9)	31 (11)
Mother tongue, n (%)			
Arabic	721 (87)	481 (95)	240 (75)
Kurmanji	99 (12)	22 (4)	77 (24)
Marital status, n (%)			
Married	533 (65)	377 (75)	156 (49)
Co-habiting with partner	524 (95)	372 (98)	152 (89)
Number of children, mean (SD)	2 (2)	3 (2)	1 (2)
Education (years), mean (SD)	9 (4)	8 (3)	11 (4)
MIGRATION AND TRAUMA RELATED FACTORS			
Time since flight (years), mean (SD)	4 (2)	5 (1)	3 (2)
Time since arrival (years), mean (SD)	4 (2)	5 (1)	2 (1)
Been in transit country, n (%)	215 (26)	30 (6)	185 (59)
Time in transit countries, n (%)			
Up to 6 months	69 (35)	4 (15)	65 (38)
6–12 months	27 (14)	3 (11)	24 (14)
1–2 years	32 (16)	4 (15)	28 (17)
> 2 years	68 (35)	16 (59)	52 (31)
Migrating alone, n (%)	231 (28)	75 (15)	156 (49)
Retained during flight, n (%)	58 (10)	1 (0)	57 (19)
Exposed to potentially traumatic event(s), n (%)	322 (41)	201 (41)	121 (40)
No residence permit in current country, n (%)	373 (46)	337 (67)	36 (11)



Overall, 30% (27–33) reported chronic pain (Table 2), while the percentages of chronic pain were 46% (38–54) among those reporting headaches, and 57% (48–64) among those reporting musculoskeletal pain. The prevalence of long-term illness or injury, lasting for more than one year and affecting daily life was 29% (26–33). The items measuring mental health showed satisfying internal consistency (Cronbach's alfa for HSCL-10: 0.89 and for HTQ: 0.92). Symptoms indicating anxiety and/or depression were presented by 35% (32–38) of respondents (mean HSCL-10 score 1.62), while symptoms compatible with PTSD were revealed by 7% (5–9) (mean HTQ score 1.56).

The drugs most frequently used on a daily base were painkillers (Fig. 2, additional file 2). Women used painkillers daily more readily than men. Among women 14% (10–19) in Lebanon and 13% (6–22) in Norway used painkillers daily, while corresponding rates among men were 4% (2–7) and 9% (5–14). Psychotropic drugs (anti-depressants, sedatives and tranquillizers combined) were more commonly used in Norway and the difference was most profound among males.

Among those reporting cardiovascular disease, only 14% (6–27) used antihypertensives, 12% (4–25) used antithrombotic medication and 6% (1–18) used cholesterol lowering medication. The highest rate of medication usage was found among patients reporting diabetes mellitus, of which 42% (22–64) used antidiabetic drugs daily. Among those reporting headaches, 21% (15–28) reported using painkillers every day. Among those reporting mental health problems 17% (9–28) used one or more psychotropic drug.

Association of migration related factors and health

Table 3 shows the association between factors related to forced migration and two prevalent outcomes among our respondents, mental health problems and chronic pain, using linear and logistic regression respectively (Table 3). Exposures to potentially traumatic events were associated with both symptoms of anxiety/depression and PTSD. Migrating alone was also associated with mental health problems both in crude and adjusted models. Detainment during flight did not show significant associations with

anxiety/depression or PTSD symptoms neither before nor after adjustment, and lack of residence permit was associated with PTSD in the adjusted model only. Traumatic experiences were associated with chronic pain both in the unadjusted and adjusted model, but we found no statistically significant association between other migration related variables and reporting chronic pain.

Discussion

Our study gives a unique overview of the health status and use of medication among Syrian refugees in two different migration phases: in a transit setting and in a recipient country. The prevalence proportion of NCDs in our sample is low. Yet a disproportionate number of those reporting NCDs does not seem to be under adequate treatment. The levels of psychological distress displayed in this study are similar to those reported among Syrian refugees elsewhere [27] while we lack comparators to the number reporting chronic pain. Further, our study confirms that migration related risk factors like exposure to traumatic events and migrating alone are associated with higher prevalence of mental health problems. As far as we know, a novel finding is the association between trauma exposure and chronic pain in an unselected population of refugees.

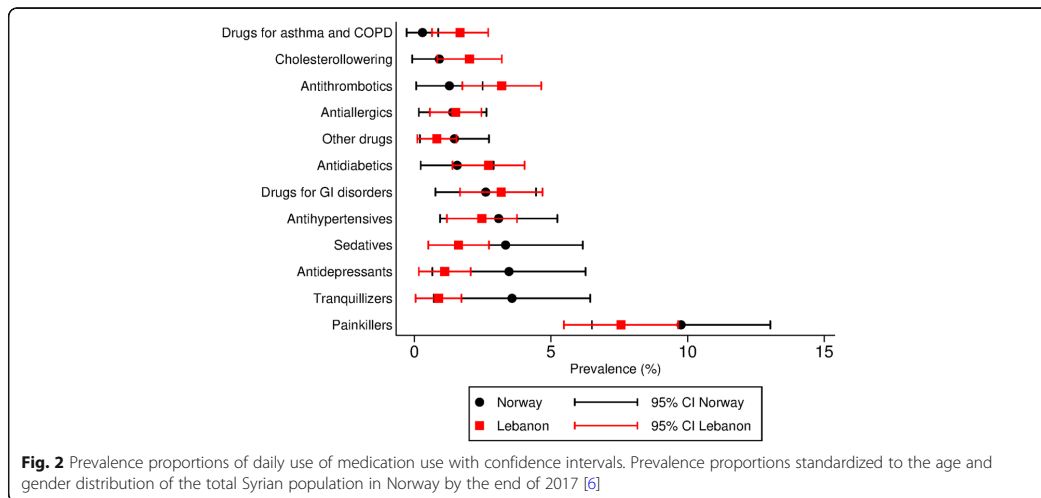
To our knowledge no other studies report *lifetime prevalence* of ill health among asylum seekers and refugees, nor among the general Syrian population. Studies of *point prevalence* among asylum seekers and refugees commonly report headache, injuries, and musculoskeletal, dermatological, dental, respiratory, gastrointestinal, and mental health problems to be frequent problems [13, 28–31]. Most of these studies evaluate clinic-based populations and rely on retrospective assessments of clinical records, making it impossible to extrapolate prevalence proportion to the population level. However, complaints of pain, particularly headache and musculoskeletal pain, seem to be a commonality.

In our material, approximately one third reported chronic pain lasting for more than 6 months. Further, almost one in three of our respondents reported chronic impairments lasting more than 1 year and impeding daily life. Comparing our data with the literature is challenging,

Table 2 Prevalence of chronic pain, chronic impairment and mental health problems

	n	All ^a		Lebanon ^a		Norway ^a	
Chronic pain (Pain > 6 months) (%; CI)	772	30	(27–33)	31	(27–35)	37	(31–43)
Chronic impairment (> 1 year) (%; CI)	775	29	(26–33)	30	(26–34)	33	(27–38)
Anxiety/depr. (HSCL-10 cut-off 1.85) (%; CI)	788	35	(32–38)	31	(27–35)	33	(27–38)
HSCL-10 score (mean; CI)		1.62	(1.57–1.67)	1.56	(1.48–1.63)	1.62	(1.53–1.71)
PTSD diagnosis (HTQ cut-off 2.5) (%; CI)	696	7	(5–9)	4	(2–6)	7	(5–11)
HTQ score (mean; CI)		1.56	(1.52–1.60)	1.49	(1.44–1.55)	1.53	(1.46–1.60)

^aPrevalence proportions and means with confidence intervals (CI) weighted by age and gender



as studies reporting chronic pain among refugees generally are restricted to selected groups such as torture survivors [32, 33]. Nevertheless, the high prevalence we find at the population level suggests that chronic pain and related impairment among forcibly displaced may be a barrier to integration that should be systematically addressed.

The prevalence proportions of NCDs in our sample are low compared to other studies among refugees from Syria. A study from Jordan found that 30% of the Syrian refugees surveyed had chronic disease [27], although the term “chronic disease” was not explicitly defined in the article. Another study reported that 22% of non-camp Syrian refugees in Jordan suffered from at least one NCD [13]. Concerning communicable disease, the incidence rate of tuberculosis in Syria has been estimated to

19 per 100,000 population [34]. In line with the relatively modest incidence rates in our respondent’s country of origin, there was only one case of reported tuberculosis in our sample. This finding supports the view that infectious diseases are not a major health problem among refugees from Syria. Indeed, a narrow focus on communicable diseases in health assessments of newly arrived refugees from this region may divert attention from more important health challenges.

The reported levels of psychological distress indicating anxiety and/or depression in this study correspond to levels reported among refugees in various sites (ranging from 32 to 44%) [35, 36], while the figure for PTSD symptoms is in the lower end of the range compared to prevalence proportions reported in systematic reviews and

Table 3 Associations between migration related factors and anxiety/depression symptoms, PTSD symptoms and and chronic pain

Variable	Anxiety/depression symptoms (Linear regression)		(PTSD symptoms) (Linear regression)		Chronic pain (Logistic regression)	
	Crude β (95% CI)	Adj. β (95% CI) *	Crude β (95% CI)	Adj. β (95% CI) *	Crude OR (95% CI)	Adj. OR (95% CI) **
Gender (men ref.)	0.11 (0.02;0.20)	0.12 (0.02;0.21)	0.05 (-0.03;0.13)	0.06 (-0.02;0.14)	1.07 (0.79;1.45)	1.17 (0.84;1.61)
Age	0.00 (0.00;0.01)	0.00 (0.00;0.01)	0.01 (0.00-0.01)	0.01 (0.00;0.01)	1.03 (1.02;1.05)	1.04 (1.02;1.05)
Education	0.02 (0.01;0.03)	0.02 (0.01;0.03)	0.02 (0.01;0.02)	0.02 (0.01;0.03)	1.02 (0.99;1.06)	1.02 (0.98;1.06)
Country (Lebanon ref.)	0.00 (-0.09;0.10)	0.04 (-0.06;0.14)	0.01 (-0.07;0.09)	0.03 (-0.05;0.12)	1.37 (1.01;1.86)	1.68 (1.20-2.34)
Time in transit	-0.04 (-0.07; -0.01)	-0.05 (-0.08;0.01)	-0.02 (-0.05;0.01)	-0.04 (-0.08; -0.01)	1.09 (0.98;1.20)	1.03 (0.91;1.16)
Migrating alone	0.17 (0.07;0.27)	0.24 (0.13;0.36)	0.15 (0.06;0.24)	0.19 (0.09;0.29)	1.06 (0.76;1.48)	0.97 (0.66;1.42)
Detained during flight	0.18 (-0.00;0.36)	0.18 (-0.02;0.38)	0.05 (-0.11;0.21)	0.08 (-0.10;0.25)	1.48 (0.84;2.62)	1.71 (0.90;3.23)
No residence permit	0.03 (-0.06;0.12)	0.08 (-0.03;0.18)	0.06 (-0.02;0.14)	0.11 (0.02;0.21)	0.76 (0.56;1.03)	0.90 (0.62;1.31)
Traumatic experiences	0.42 (0.34;0.51)	0.42 (0.33;0.51)	0.46 (0.38;0.54)	0.44 (0.37;0.52)	2.58 (1.88;3.52)	2.48 (1.79;3.43)

* β -coefficients (β) adjusted by age, gender and country. β values with confidence intervals above 0 indicate significant association
 **Odds ratios (OR) adjusted by age, gender and country. OR with confidence interval values above 1 indicate significant association

meta-analyses (ranging from 9 to 36%) [8, 37]. In a review looking particularly at Syrians in neighbouring countries, levels of PTSD ranged from 16 to 83% [38]. We do not have any full explanation for this comparatively low prevalence of PTSD but many of our respondents escaped the atrocities of the Syrian war at an early stage. Some papers report higher rates of depression and anxiety among asylum seekers compared to refugees, highlighting the impact of legal status, though in our material we only found evidence for such association between PTSD and lack of residence permit in the adjusted regression model. The relatively low level of PTSD symptoms in our sample contradicts the substantial share of our respondents exposed to potential traumatic events. However, factors acting protective to enhance resilience among refugees is not well understood. Further research is needed to identify interventions both outside and within the health care system that promote resilience, health and well-being among refugees exposed to traumatic events.

Regular use of medication may be challenging in the context of displacement. Previous studies from Jordan have shown that approximately a quarter of Syrian refugees in need of medication are lacking access to drugs [27] and interruptions in regular medication are predominantly due to restricted financial resources [13]. In our study, the access gap seems to be even broader. Health care providers involved in health assessments of refugees in transit and recipient settings should seek to identify discontinuity in use of regular medication and provide access to necessary drugs.

Migrating alone is a risk factor for adverse mental health outcomes in our study. Family separation has previously been shown to increase migration related stress [39]. Additionally, our study finds that exposure to potentially traumatic events is a risk factor not only for anxiety/depression and PTSD symptoms but also for chronic pain. The relationship between traumatic experiences and mental health problems is well established [40], and physical complaints are common among PTSD patients [41]. However, the association between trauma exposure and chronic pain in unselected refugee populations is poorly examined and should be further studied. We recommend that public health policies and practises address migration related risk factors among forcibly displaced individuals.

Strengths and limitations

Our study gives a unique approximation to a population-based overview of the health status and use of medication among Syrian refugees in two different migration phases.

Our sampling protocol reflects the inherent challenges in studying moving populations. Although we consider the study a close proxy to population-based study, as opposed to studies recruiting patients from health clinics, we lack a complete sampling frame, as there is no central

register of Syrian refugees on the move. The connection to educational activities for refugees may have affected the representativeness of our study population. Nevertheless, the educational activities were compulsory for the refugees at the time of recruitment. The high response rate increases the representativeness of the sample.

The demographic patterns at the two recruitment sites were, as expected, clearly divergent; the sample from Lebanon corresponds well with the Norwegian authorities' official resettlement policy that gives explicit priority to families [42]. In parallel, the sample from Norway includes many who arrived as asylum seekers among which men are known to be overrepresented. We have therefore reported prevalence proportions standardised to the demographic patterns of the overall population of Syrians in Norway and we adjust for age, gender and country in our regression analyses. There are well-known gender differences in the prevalence of many of the conditions we explore, and we have demonstrated variance in the prevalence of musculoskeletal complaints and use of painkillers. For other conditions and drugs, we have only displayed results stratified by gender in the supplementary material as we find few gender differences. The sample size might be insufficient to detect minor differences in the prevalence proportions between women and men.

Importantly, this study presents findings of self-assessed health. To increase rigor, we employed predominantly validated survey items and validated translation and adaptation principles.

Conclusions

Forcibly displaced Syrians in Lebanon and Norway in general have few chronic diseases yet bear a high burden of chronic pain and symptoms of mental health problems. Moreover, disproportionate numbers of those reporting non-communicable disease do not seem to be under adequate treatment. Public health policymakers and practitioners need to ensure that universal health coverage also encompasses forcibly displaced individuals along their migration trajectories. Further investigations are warranted into the relationship between trauma exposure and chronic pain among forcibly displaced migrants as well as on culturally accepted and cost-effective interventions for central health challenges including chronic pain and trauma related psychological morbidity.

Supplementary information

Supplementary information accompanies this paper at <https://doi.org/10.1186/s12889-020-8376-7>.

Additional file 1. Title of data: Lifetime prevalence of different health conditions (%). Description of data: table with lifetime prevalence proportions of selected health conditions and symptoms combined and stratified by country and gender.

Additional file 2. Title of data: Daily use of drugs (%). Description of data: table with prevalence proportions of daily use of selected drugs combined and stratified by country and gender.

Abbreviations

HSCL-10: Hopkins Symptom Checklist 10; HTQ: Harvard Trauma Questionnaire; HUBRO: Oslo Health Study; HUNT: Nord-Trøndelag Health Study; NCD: Non-communicable disease; UNHCR: United Nations High Commissioner for Refugees

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Authors' contributions

ED, BK, LTF, JHY and EMS contributed to the design of the study. ED, JHY, WH and EMS took part in acquisition of data. EMS and JI performed the analyses. All authors took part in interpretations and writing of the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets generated during the current study are not publicly available due to data protection regulations in Norway.

Ethics approval and consent to participate

The project was approved by the Regional Committee for Medical and Health Research Ethics of South East Norway, reference 2017/377. In our protocol we intended to apply to the relevant national ethics committee in Lebanon, but this was deemed unnecessary by the involved UN agency (International Organization for Migration) and the Norwegian ethics committee. All enrolled participants received information about the study and signed a consent form in Arabic.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Original Research

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.

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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 χ^2 -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

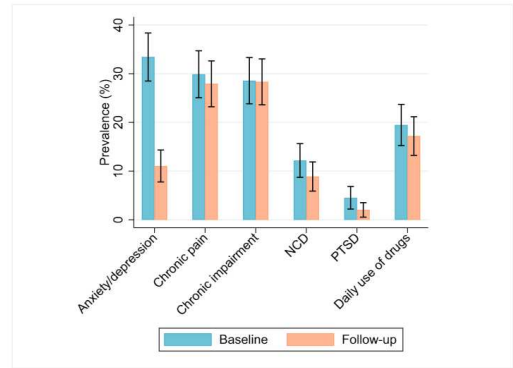


Fig. 1. Change in prevalence of somatic and mental health outcomes between baseline and follow-up. NCD = Non-communicable diseases, PTSD = Post-traumatic stress disorder.

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.

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 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
		3	2–4
Number of children		8	6–10
Education (years)			
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

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.

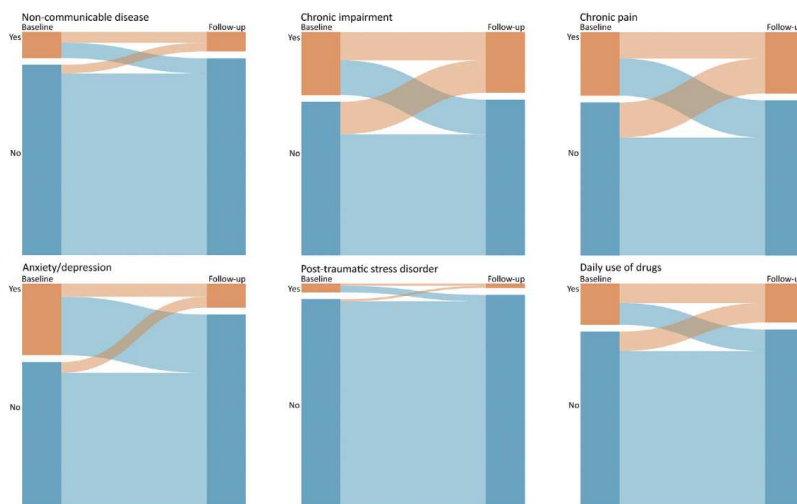


Fig. 2. Trajectories of prevalence proportions of somatic and mental health outcomes from baseline to follow-up.

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 ranging 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 displaced 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 over-represented 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 methodological 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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Region:	Officer:	Phone:	Our date:	Reference:
REC South East	Leena Heinonen	22845529	18.04.2017	2017/377 REK South East, Section D
			Your date:	
			14.02.2017	

Esperanza Diaz
University of Bergen

2017/377 Changing health and health care needs along the Syrian refugees' trajectories to Norway

Responsible for Research: University of Bergen, The Norwegian Centre for Migration and Minority Health (NAKMI)

Project Manager: Esperanza Diaz

We are writing in reference to your Application for Preliminary Approval for the above-mentioned Research Project. The Regional Committee for Medical and Health Research Ethics, Section D, South East Norway, reviewed your Application during its meeting on the 29th of March 2017. The Project was assessed in accordance to the Norwegian Research Ethics Act § 4 2006, and the Health Research Act § 10 2008, for Regional Committees for Medical and Health Research Ethics.

Project summary (as provided by the Project Manager)

The number of refugees living in Norway will soon reach 200.000. Currently, half of the asylum seekers to Norway are from Syria, and most of them obtain permanent refugee status. Little is known about their total burden of disease, how somatic and mental health change during the migration phases and how best to provide adequate health services to this growing group. Among adult asylum seekers and refugees from Syria following different migration paths to Norway, our study aims to investigate their 1) Burden of somatic and mental health problems; 2) Associations between mental and somatic health; 3) Self-reported health (SRH), quality of life (QOL), health care access and unmet healthcare needs; 4) Association between SRH and QOL and health care access and needs. Data will be collected through questionnaires and personal interviews. Our study will provide valuable information for the development of appropriate and equitable health services for asylum seekers and refugees.

The Committee's Considerations

This study is a context-sensitive survey for Syrian and Palestinian refugees aged 16 and upwards. Three groups will be included: 250 Quata refugees in Lebanon, 250 refugees who are waiting in Greece or Italy to come to Norway and 250 refugees who already are in Norway, in Bergen and Kristiansand. The survey data are collected through self-administrated questionnaires, translated to Arabic and repeated within one year. Some of the refugees will be interviewed for the collection of qualitative data. All participants will be asked for informed consent.

The purpose of this project is to study the change in burden of disease, including somatic and mental health and self-perceived health in the different migration phases.

For data collection, the researchers will cooperate with the International Organization for Migration in Lebanon, Greece and Italy. The project is also collaborating with the University of Bristol and the Swedish Red Cross University College for comparison of results collected in other countries.

The Project is a student project, carried out to form the basis for a PhD thesis in Medicine.

The Committee considers that the Project can provide new knowledge about health and disease among the Syrian and Palestinian Refugees and may identify risk factors for negative development of somatic and mental health.

The Committee has no objections to the study as described in the Application Form and the Protocol.

Decision

The Project is approved, in accordance with the Norwegian Health Research Act § 9 and § 33.

The Approval is given on condition that the Project is conducted as described in the Application and the Protocol.

The Approval is valid until 31st of December 2023. The data must be stored as de-identified data, i.e. with identifying information kept separate from the other data. For purposes of documentation, the data should be kept until 31st of December 2028 and deleted or anonymised after this date.

The data must be stored in accordance with the norms of data protection in personopplysningsforskriften chapter 2, and the guide "Personvern og informasjonssikkerhet I forskningsprosjekter innenfor helse- og omsorgssektoren", published by the Norwegian Directorate of Health.

If the Project Manager wants to make substantial changes to the objective, method, schedule or organization of the Research Project, an application must be submitted to the Regional Committee for Medical and Health Research Ethics.

The Project Manager must submit a Final Report to the Regional Committee for Medical and Health Research Ethics when the Research Project is finished.

The Committee's decision was unanimous.

The decision of the Committee may be appealed to the National Committee for Research Ethics in Norway. The appeal will need to be sent to the Regional Committee for Research Ethics in Norway, South-East D. The deadline for appeals is three weeks from the date on which you receive this letter.

With kind regards,

Finn Wisløff
Chair of the Regional Committee for Medical
& Health Research Ethics of South East Norway, Section D

Leena Heinonen
adviser

CC: Guri.Rortveit@uib.no; bernadette.kumar@nakmi.no
University of Bergen: post@uib.no
The Norwegian Centre for Migration and Minority Health: post@nakmi.no

Informed consent form-questionnaire

'Changing health and health care needs along the Syrian refugees' trajectories to Norway'

Background information:

The University of Bergen together with the International Organization of Migration and the municipalities of Bergen and Kristiansand are conducting a survey to study the health and health care services experiences among Syrian refugees and asylum seekers to Norway. The results from the study will increase our knowledge about the health of refugees in/to Norway and will help us to provide better health care services. This is an invitation for you to participate in this study by answering a questionnaire survey. In case you do not live in Norway already, we ask you for your permission to contact you in Norway again to fill the questionnaire after some months living in Norway.

Participant selection:

All 16 years or older persons at the refugee health centre are invited to participate in this study by answering a self-administered anonymous questionnaire. The questionnaire takes 15-20 minutes to complete, and includes general demographic questions, questions related to health, quality of life, access to healthcare services and unmet healthcare needs.

Confidentiality:

We will not register your name or personal identification number or other directly recognisable type of information in the questionnaire. Information about you that will be collected through the questionnaire will be kept confidential and stored safely. Only the researchers will have access to your information, which will only be used in accordance with the purpose of the study as described above. A code number links your name to your data through a list of names in order to be able to contact you again. The list that can link your name to the code number will be secured, and only the authorised study staff will have access to this list. This study is not linked to any other legal institution and cannot affect your eventual permission or denial to stay in the country.

Rights to refuse or withdraw:

Participating in the Syrian Refugee Health Survey is your choice. You do not have to take part in this research if you do not wish to do so and refusing to participate will not affect your regular health exam or treatment in any way. You may stop participating in the research at any time that you wish without losing any of your rights as a patient here. If you have any questions about this survey, please talk to the person who gave you the questionnaire.

Consent for participation in the study:

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research. I know that I may refuse to participate or to stop at any time without any loss of health care benefits that I am otherwise receiving.

Date

Date

Respondent Signature

Interviewer Signature



Informed consent form-questionnaire

'CHART- Changing health and health care needs along the Syrian refugees' trajectories to Norway'

Background information:

The University of Bergen is conducting a survey to study the health and health care services experiences among Syrian refugees and asylum seekers to Norway. The results from the study will increase our knowledge about the health of refugees in/to Norway and will help us to provide better health care services. You answered to our questions while you were in Lebanon. This is an invitation for you to participate in this study by answering a similar questionnaire survey once you live in Norway. We also ask you for your permission to contact you in Norway again after one to two years living in Norway to learn how your health is and how the health care system respond to your needs.

Participant selection:

All 16 years or older persons who participated in the CHART study in Lebanon are invited to participate again in this study by answering a self-administered anonymous questionnaire. The questionnaire takes 25-30 minutes to complete, and includes general demographic questions, questions related to health, quality of life, access to healthcare services and unmet healthcare needs plus questions about food security in the household.

Confidentiality:

We will only register your name and other directly recognisable type of information in the questionnaire if you agree that we contact you again. Your personal information will be kept electronically separate from the rest of the information you give us. A code number links your name to your data through a list of names in order to be able to contact you again. The list that can link your name to the code number will be secured, and only the authorised study staff will have access to this list. Information about you that will be collected through the questionnaire will be kept confidential and stored safely, and will only be used in accordance with the purpose of the study as described above. This study is not linked to any other legal institution and cannot affect your eventual permission or denial to stay in Norway.

Rights to refuse or withdraw:

Participating in the CHART Survey is your choice. You do not have to take part in this research if you do not wish to do so and refusing to participate will not affect your regular health exam or treatment in any way. You may stop participating in the research at any time that you wish without losing any of your rights as a patient here. If you have any questions about this survey, please talk to the person who gave you the questionnaire.

Consent for participation in the study:

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research. I know that I may refuse to participate or to stop at any time without any loss of health care benefits that I am otherwise receiving.

Date

Date

Respondent Signature

Interviewer Signature

Date:

Place:

CHANGING HEALTH AND HEALTH CARE NEEDS ALONG THE SYRIAN REFUGEES' TRAJECTORIES TO NORWAY

QUESTIONNAIRE

Thank you for taking part in this study by completing this questionnaire.

The information will be used in research aimed to understand the health situation and improve health care services for refugees. Some of the questions are similar to questions you answer when you attend the health examination. It is important that you answer all the questions on this questionnaire. Please ask if there is something you do not understand. The completed questionnaire should be returned to the person who invited you to the study before you leave.

By answering this questionnaire you accept that we use this information only for the purposes explained to you. All information will be treated in strict confidence.

This survey contains 5 parts. Please answer by putting an X in the box () , or answering the open fields () as explained in the text.

Yours sincerely,
The University of Bergen, The Health Care services at the Municipality of Kristiansand, and The Municipality of Bergen and IOM

HEALTH LITERACY SCREENING

1 How often do you need help reading written material from your doctor or pharmacy?

Never Rarely Sometimes Often Always

BACKGROUND INFORMATION

2 Gender:

Woman Man

3 Year of birth:

(e.g. 1978)

4 Which country were you born in?

Syria Iraq Other

Please specify (e.g. Turkey).

5 What language is your native tongue?

Arabic Kurmanji Sorani
 Armenian Other

Please specify (e.g. Turkish).

6 What is your ethnicity?

Arab Kurd Armenian Other

Please specify (e.g. Turkish).

7 What is your marital status?

Single Separated Married
 Divorced Widowed Other

8 If married, are you living with your partner(s)?

Yes No

9 Do you have children?

Yes No

10 How many children do you have?

1 2 3 4 5 or more

11 How many years of education have you completed altogether?

years
(e.g. 5 years)

Survey number/ID:

12 What was your occupational status in your country of origin?

- Employed for wages Self-employed
 Out of work Homemaker
 Student In the military
 Retired Unable to work
 Other

Please explain.

13 When did you flee from your home country?

Year: (e.g. 2013)

14 When did you arrive to the country where you are now?

Month and year:
 (e.g. November 2013)

15 Did you arrive?

- With all immediate family members
 With some immediate family members
 Alone

16 Have you stayed in any country (transit) on your way to this place?

Yes No

17 If yes, in how many countries did you stay for more than a week?

- One Two Three More than three

18 If you have stayed in several countries on the way to this place, for how long (in total) did you stay in that country/ those countries?

- Up to 6 months 6-12 months
 1-2 years More than two years

19 Were you ever retained against your will during the transit phase?

Yes No

20 Do you have a residence permit in the country you are now?

Yes No

HEALTH STATUS

21 How do you consider your health at the moment?

Very poor Poor Neither Good Very good

22 Have you had or do you have any of the following? (Put an X on each line under No or Yes. If Yes, please explain.)

	Not familiar with the term	No	Yes	Age first time
22.1 Heart attack/chest pain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.2 years
22.3 Heart failure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.4 years
22.5 Other heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.6 years
22.7 Stroke/brain hemorrhage	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.8 years
22.9 Kidney disease	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.10 years
22.11 Liver disease	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.12 years
22.13 Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.14 years
22.15 Chronic bronchitis, emphysema or COPD	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.16 years
22.17 Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.18 years
22.19 Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.20 years
22.21 Psoriasis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.22 years
22.23 Eczema	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.24 years
22.25 Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.26 years
22.27 Arthritis Rheumatoid arthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.28 years
22.29 Other joint diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.30 years
22.31 Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.32 years
22.33 Fibromyalgia or generalized body pain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.34 years
22.35 Mental health problems you sought help for	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.36 years
22.37 Epilepsy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.38 years
22.39 Headache	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.40 years
22.41 Abdominal pain/diarrhea	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.42 years
22.43 Allergies	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.44 years

23 Do you suffer from long-term (at least 1 year) illness or injury of a physical or psychological nature that impairs your daily life?

Yes No

24 If yes, how would you describe your impairment?

	Slight	Moderate	Severe
24.1 Motor ability impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.2 Vision impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.3 Hearing impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.4 Impairment due to physical illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.5 Impairment due to mental health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25 Do you have physical pain now that has lasted more than 6 months?

Yes No

26 If yes, how strong has your physical pain been during the last 4 weeks?

No pain Very mild Mild Moderate Strong Very strong

27 Have you used any of the following medicines?

(Please place only one X for each medication at the answer that best fits your situation.)

	Daily	Weekly	Less than weekly	Not taken during the last 4 weeks
27.1 Drugs for peptic ulcer, gastro-esophageal reflux and digestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.2 Antithrombotics (aspirin, warfarin)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.3 Cholesterol reducing medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.4 Medicine for high blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.5 Medicine for diabetes mellitus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.6 Medication for asthma or COPD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.7 Painkillers, off prescription	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.8 Painkillers, on prescription	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.9 Sedatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.10 Tranquillizers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.11 Anti-depressive medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.12 Medication for allergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.13 Other prescribed medication, but do not know for what	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28 Listed below are symptoms or problems people sometimes have. Please indicate in the appropriate box how much each of these symptoms has bothered or distressed you in the last week.

	None	A little	Quite a bit	Extremely
28.1 Suddenly scared for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.2 Feeling fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.3 Faintness, dizziness or weakness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.4 Feeling tense or keyed up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.5 Blaming yourself for things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.6 Difficulty falling asleep, staying asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.7 Feeling blue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.8 Feeling of worthlessness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.9 Feeling everything is an effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.10 Feeling hopeless about future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29 Exposure to a stressful event or situation (either short or long lasting) of exceptionally threatening or catastrophic nature is likely to cause pervasive distress in almost anyone. Examples of such difficult and frightening experiences are: being assaulted, or witnessing other people being hurt or killed.

Have you experienced any of these or some other terrifying event(s)? Yes No

30 The following are symptoms people sometimes experience after hurtful and terrifying events. Please indicate, in the appropriate box, how much each symptom has bothered you in the last week.

	Not at all	A little	Quite a bit	Extremely
30.1 Recurrent thoughts or memories of the most hurtful or terrifying events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.2 Feeling as though the event is happening again	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.3 Recurrent nightmares	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.4 Feeling detached or withdrawn from people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.5 Unable to feel emotions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.6 Feeling jumpy, easily startled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.7 Difficulty concentrating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.8 Trouble sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.9 Feeling on guard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.10 Feeling irritable or having outbursts of anger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 30.11 Avoiding activities that remind you of the traumatic or hurtful event
- 30.12 Inability to remember parts of the most hurtful or traumatic events
- 30.13 Less interest in daily activities
- 30.14 Feeling as if you don't have a future
- 30.15 Avoiding thoughts or feelings associated with the traumatic or hurtful events
- 30.16 Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events

HEALTH HABITS

- 31 Do you smoke? (Put an X in only one box)
- No, I have never smoked.
- No, I quit smoking.
- Yes, cigarettes occasionally (parties/vacation, not daily).
- Yes, cigar/cigarillos/pipe/shisha (water pipe) occasionally.
- Yes, cigarettes daily. Number of cigarettes per day: 31.1
- Yes, cigar/cigarillos/pipe/shisha (water pipe) daily.
Number per day: 31.2

- 32 About how often in the last 12 months did you drink alcohol? (Put an X in only one box)
- 4-7 times a week About once a month
- 2-3 times a week A few times a year
- About once a week None the last year
- 2-3 times a month Never drink alcohol

- 33 Did you drink alcohol during the past 4 weeks? Yes No

- 34 If yes, did you drink so much that you felt very intoxicated (drunk)?
- Yes, 3 times or more
- Yes, 1-2 times
- No

- 35 Did you use any other type of drug during the past 4 weeks? Yes No

- 36 How often do you exercise? (On average. Put an X in only one box)
- Never 2-3 times a week
- Less than once a week Nearly every day
- Once a week

- 37 About how many hours do you sit during a normal day? (Both work hours and leisure time)
- About hours (e.g. 6 hours)

HEALTH RELATED QUALITY OF LIFE

	Very poor	Poor	Neither	Good	Very good
38 How would you rate your quality of life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
39 How satisfied are you with your health?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not at all	A little	A moderate amount	Very much	An extreme amount
40 To what extent do you feel that physical pain prevents you from doing what you need to do?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41 How much do you need any medical treatment to function in your daily life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42 How much do you enjoy life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43 To what extent do you feel your life to be meaningful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	A little	A moderate amount	Very much	Extremely
44 How well are you able to concentrate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45 How safe do you feel in your daily life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46 How healthy is your physical environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	A little	Moderately	Mostly	Completely
47 Do you have enough energy for everyday life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48 Are you able to accept your bodily appearance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49 Have you enough money to meet your needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50 How available to you is the information that you need in your day-to-day life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51 To what extent do you have the opportunity for leisure activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Very poor	Poor	Neither	Good	Very good
52 How well are you able to get around?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
53 How satisfied are you with your sleep?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54 How satisfied are you with your ability to perform your daily living activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55 How satisfied are you with your capacity for work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56 How satisfied are you with yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57 How satisfied are you with your personal relationships?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58 How satisfied are you with your sex life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59 How satisfied are you with the support you get from your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60 How satisfied are you with the conditions of your living place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61 How satisfied are you with your access to health services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62 How satisfied are you with your transport?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Seldom	Quite often	Very often	Always
63 How often do you have negative feelings such as blue mood, despair, anxiety, depression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please read the following questions and put an X for each question in the response that most closely describes your current situation.

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
64 Is there someone available to you whom you can count on to listen to when you need to talk?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65 Is there someone available to give you good advice about a problem?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66 Is there someone available to you who shows you love and affection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67 Is there someone available to help you with daily chores?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68 Can you count on anyone to provide you with emotional support (talking over problems or helping you make a difficult decision)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69 Do you have as much contact as you would like with someone you feel close to, someone in whom you can trust and confide?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Survey number/ID:

ACCESS TO HEALTHCARE, UNMET HEALTH NEEDS AND KNOWLEDGE OF HEALTH CARE SYSTEM

70 During the last 12 months, have you visited any of the following:

(Please, put an X on each line)

	Yes	No
70.1 Health assessment at arrival to your current living place	<input type="checkbox"/>	<input type="checkbox"/>
70.2 General practitioner	<input type="checkbox"/>	<input type="checkbox"/>
70.3 Another specialist outside the hospital	<input type="checkbox"/>	<input type="checkbox"/>
70.4 Consultation with doctor without being admitted	<input type="checkbox"/>	<input type="checkbox"/>
70.5 Emergency room services	<input type="checkbox"/>	<input type="checkbox"/>
70.6 Chiropractor	<input type="checkbox"/>	<input type="checkbox"/>
70.7 Homeopath, acupuncturist or other alternative treatment practitioner	<input type="checkbox"/>	<input type="checkbox"/>
70.8 Have you been admitted to hospital <u>in the last 12 months</u> ?	<input type="checkbox"/>	<input type="checkbox"/>

71 If you did not get the health care you needed after you fled from your country of origin, was the reason that:

(You may choose more than one option.)

- I have not experienced unmet health needs
- I did not know where to go for treatment.
- Interpreters or cultural mediators were unavailable.
- I could not afford it.
- The problem was not considered urgent enough.
- The services needed were unavailable in my location.
- Restrictions/limitations of rights to medical care.
- I did not trust the local health services.
- Other reasons. Please specify below.

Please specify.

72 Do you feel that in your current living place, you or your family members have access to medical care when you are concerned of your health?

- Not at all A little Moderately Completely

73 Do you feel that in your current living place, you or your family members have received the medical assistance you need?

- Not at all A little Moderately Completely

74 If you have experienced unmet health needs mentioned in previous questions, where were you residing?

- I have not experienced unmet health needs
- In a transit country (Lebanon, Greece, Turkey)
- In Norway
- Both in transit country and in Norway

75 Do you currently know where you can find healthcare if needed?

- Unsure
- No
- Yes

THANK YOU FOR ANSWERING THESE QUESTIONS! PLEASE MAKE SURE TO RETURN THIS FORM TO THE PERSON WHO GAVE IT TO YOU BEFORE LEAVING.

Date:

Place:

CHART – Changing health and health care needs along the Syrian refugees' trajectories to Norway

FOLLOW-UP QUESTIONNAIRE

Thank you for taking part in this study by completing this questionnaire!

The information will be used in research aimed to understand the health situation and improve health care services for refugees in Norway. Most of the questions are the same ones that you answered when you were in Lebanon. It is important that you answer all the questions on this questionnaire once more. Do not hesitate to ask if there is something you do not understand.

Please hand the completed questionnaire back to the person who invited you to the study before you leave

or send it back with the attached envelope in case you are answering from home.

By answering this questionnaire you accept that we use this information only for the purpose explained to you. All information will be treated in strict confidence.

This survey contains 6 parts. Please answer by putting an X in the box () , or answering the open fields () as explained in the text.

Yours sincerely,
University of Bergen.

HEALTH LITERACY SCREENING

1 How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?

(This question applies to the situation where you are now.)

Never Rarely Sometimes Often Always

PART 1 – BACKGROUND INFORMATION

2 Gender: Woman Man

3 Year of birth: (e.g. 1978)

4 What language is your native tongue?

Arabic Kurmanji Sorani
 Armenian Other

Please specify (e.g. Turkish).

5 What is your marital status?

Single Separated Married
 Divorced Widowed Other

6 If married, are you living with your partner(s)? Yes No

7 Do you have children? Yes No

8 If yes, how many children do you have?
 1 2 3 4 5 or more

9 How many years of education have you completed altogether? years
(e.g. 5 years)

10 What is your occupational status in Norway?

- Employed for wages Self-employed
- Out of work Homemaker
- Student / introduksjonsprogrammet
- Retired Unable to work
- Other

Please explain.

11 When did you arrive in Norway?

Day, month and year: . .

(e.g. 14.11.2013 for November 14th 2013)

12 Did you arrive?

- Alone
- With all immediate family members
- With some immediate family members

PART 3 – HEALTH STATUS

13 How do you consider your health at the moment?

Very poor Poor Neither Good Very good

14 Have you had or do you have any of the following?

(Put an X on each line under No or Yes. If Yes, please explain.)

	Not familiar with the term	No	Yes	Age first time
14.1 Heart attack/chest pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.2 years
14.3 Heart failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.4 years
14.5 Other heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.6 years
14.7 Stroke/brain hemorrhage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.8 years
14.9 Kidney disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.10 years
14.11 Liver disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.12 years
14.13 Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.14 years
14.15 Chronic bronchitis, emphysema or COPD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.16 years
14.17 Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.18 years
14.19 Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.20 years

14.21 Psoriasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.24 years
14.23 Eczema on hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.26 years
14.25 Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.28 years
14.27 Arthritis Rheumatoid arthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.30 years
14.29 Other joint diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.32 years
14.31 Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.34 years
14.33 Fibromyalgia or generalized body pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.36 years
14.35 Mental health problems you sought help for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.38 years
14.37 Epilepsy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.40 years
14.39 Headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.42 years
14.41 Abdominal pain/diarrhoea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.44 years
14.43 Allergies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

15 Do you suffer from long-term (at least 1 year) illness or injury of a physical or psychological nature that impairs your daily life?

Yes No

16 If yes, would you describe your impairment as slight, moderate or severe?

	Slight	Moderate	Severe
16.1 Motor ability impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.2 Vision impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.3 Hearing impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.4 Impairment due to physical illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.5 Impairment due to mental health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17 Do you have physical pain now that has lasted more than 6 months?

Yes No

18 If yes, how strong has your physical pain been during the last 4 weeks?

No pain Very mild Mild Moderate Strong Very strong

19 Have you used any of the following medicines?

(Please place only one X for each medication at the answer that best fits your situation.)

	Daily	Weekly	Less than weekly	Not during last 4 weeks
19.1 Drugs for peptic ulcer, gastro-esophageal reflux and digestion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.2 Antithrombotics (aspirin, warfarin)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.3 Cholesterol reducing medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.4 Medicine for high blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.5 Medicine for diabetes mellitus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.6 Medication for asthma or COPD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.7 Painkillers, off prescription	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.8 Painkillers, on prescription	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.9 Sedatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.10 Tranquillizers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.11 Anti-depressive medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.12 Medication for allergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.13 Contraceptives (pills, injections or other methods)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.14 Other prescribed medication, but do not know for what	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20 Listed below are symptoms or problems people sometimes have. Please indicate in the appropriate box how much each of these symptoms has bothered or distressed you in the last week.

	Not at all	A little	Quite a bit	Extremely
20.1 Suddenly scared for no reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.2 Feeling fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.3 Faintness, dizziness or weakness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.4 Feeling tense or keyed up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.5 Blaming yourself for things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.6 Difficulty falling asleep, staying asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.7 Feeling blue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.8 Feeling of worthlessness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.9 Feeling everything is an effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.10 Feeling hopeless about future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21 Exposure to a stressful event or situation (either short or long lasting) of exceptionally threatening or catastrophic nature is likely to cause pervasive distress in almost anyone. Examples of such difficult and frightening experiences are: being assaulted, or witnessing other people being hurt or killed.

Have you experienced any of these or some other terrifying event(s)? Yes No

22 The following are symptoms people sometimes experience after hurtful and terrifying events. Please indicate, in the appropriate box, how much each symptom has bothered you in the last week.

	Not at all	A little	Quite a bit	Extremely
22.1 Recurrent thoughts or memories of the most hurtful or terrifying events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.2 Feeling as though the event is happening again	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.3 Recurrent nightmares	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.4 Feeling detached or withdrawn from people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.5 Unable to feel emotions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.6 Feeling jumpy, easily startled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.7 Difficulty concentrating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.8 Trouble sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.9 Feeling on guard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.10 Feeling irritable or having outbursts of anger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.11 Avoiding activities that remind you of the traumatic or hurtful event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.12 Inability to remember parts of the most hurtful or traumatic events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.13 Less interest in daily activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.14 Feeling as if you don't have a future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.15 Avoiding thoughts or feelings associated with the traumatic or hurtful events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.16 Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART 3 – HEALTH HABITS

23.1 Do you smoke? (Put an X in only one box)

- No, I have never smoked.
- No, I quit smoking.
- Yes, cigarettes occasionally (parties/vacation, not daily).
- Yes, cigar/cigarillos/pipe/shisha (water pipe) occasionally.
- Yes, cigarettes daily. Number of cigarettes per day: 23.2
- Yes, cigar/cigarillos/pipe/shisha (water pipe) daily.
Number per day: 23.3

24 About how often in the last 12 months did you drink alcohol?

(Put an X in only one box)

- 4-7 times a week About once a month
- 2-3 times a week A few times a year
- About once a week None the last year
- 2-3 times a month Never drink alcohol

25 Did you drink alcohol during the past 4 weeks?

Yes No

26 If yes, did you drink so much that you felt very intoxicated (drunk)?

- Yes, 3 times or more
- Yes, 1-2 times
- No

Yes No

27 Did you use any other type of drug during the past 4 weeks?

28 How often do you exercise?

(On average. Put an X in only one box)

- Never 2-3 times a week
- Less than once a week Nearly every day
- Once a week

29 About how many hours do you sit during a normal day?

(Both work hours and leisure time)

About hours (e.g. 6 hours)

PART 4 – HEALTH RELATED QUALITY OF LIFE

	Very poor	Poor	Neither	Good	Very good
30 How would you rate your quality of life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
31 How satisfied are you with your health?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not at all	A little	A moderate amount	Very much	An extreme amount
32 To what extent do you feel that physical pain prevents you from doing what you need to do?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33 How much do you need any medical treatment to function in your daily life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34 How much do you enjoy life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35 To what extent do you feel your life to be meaningful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	A little	A moderate amount	Very much	Extremely
36 How well are you able to concentrate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37 How safe do you feel in your daily life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38 How healthy is your physical environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Survey number/ID:

	Not at all	A little	Moderately	Mostly	Completely
39 Do you have enough energy for everyday life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40 Are you able to accept your bodily appearance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41 Have you enough money to meet your needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42 How available to you is the information that you need in your day-to-day life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43 To what extent do you have the opportunity for leisure activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very poor	Poor	Neither	Good	Very good
44 How well are you able to get around?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
45 How satisfied are you with your sleep?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46 How satisfied are you with your ability to perform your daily living activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47 How satisfied are you with your capacity for work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48 How satisfied are you with yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49 How satisfied are you with your personal relationships?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50 How satisfied are you with your sex life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51 How satisfied are you with the support you get from your friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52 How satisfied are you with the conditions of your living place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53 How satisfied are you with your access to health services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54 How satisfied are you with your transport?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Never	Seldom	Quite often	Very often	Always
55 How often do you have negative feelings such as blue mood, despair, anxiety, depression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please read the following questions and put an X for each question in the response that most closely describes your current situation.

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
56 Is there someone available to you whom you can count on to listen to when you need to talk?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57 Is there someone available to give you good advice about a problem?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58 Is there someone available to you who shows you love and affection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59 Is there someone available to help you with daily chores?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60 Can you count on anyone to provide you with emotional support (talking over problems or helping you make a difficult decision)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61 Do you have as much contact as you would like with someone you feel close to, someone in whom you can trust and confide?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART 5 – ACCESS TO HEALTHCARE, UNMET HEALTH NEEDS AND KNOWLEDGE OF HEALTH CARE SYSTEM

62 During the last 12 months, have you visited any of the following:

(Please, put an X on each line)

	Yes	No
62.1 Health assessment at arrival to your current living place	<input type="checkbox"/>	<input type="checkbox"/>
62.2 General practitioner	<input type="checkbox"/>	<input type="checkbox"/>
62.3 Another specialist outside the hospital	<input type="checkbox"/>	<input type="checkbox"/>
62.4 Consultation with doctor without being admitted	<input type="checkbox"/>	<input type="checkbox"/>
62.5 Emergency room services	<input type="checkbox"/>	<input type="checkbox"/>
62.6 Chiropractor	<input type="checkbox"/>	<input type="checkbox"/>
62.7 Homeopath, acupuncturist or other alternative treatment practitioner	<input type="checkbox"/>	<input type="checkbox"/>
62.8 Have you been admitted to hospital <u>in the last 12 months</u> ?	<input type="checkbox"/>	<input type="checkbox"/>

63 If you did not get the health care you needed after you arrived in Norway, was the reason that:

(You may choose more than one option.)

- You did not know where to go for treatment.
- Interpreters or cultural mediators were unavailable.
- You could not afford it.
- The problem was not considered urgent enough.
- The services needed were unavailable in your location.
- Restrictions/limitations of rights to medical care.
- You did not trust the local health services.
- Other reasons. Please specify below.

Please specify.

64 Do you feel that in your current living place, you or your family members have access to medical care when you are concerned of your health?

- Not at all A little Moderately Completely

65 Do you feel that in your current living place, you or your family members have received the medical assistance you need?

- Not at all A little Moderately Completely

66 Do you currently know where you can find healthcare if needed?

- Unsure
 No
 Yes

PART 6 – FOOD SECURITY

The following questions are about the food situation for your household in the past 12 months.

In case you know that your partner is answering this questionnaire, please tell the person who gave you this questionnaire before you fill it.

67 Which of the following statements best describes the food eaten in your household in the past 12 months, that is since [current month] of last year?

- You and other household members always had enough of the kinds of foods you wanted to eat.
- You and other household members had enough to eat, but not always the kinds of food you wanted.
- Sometimes you and other household members did not have enough to eat.
- Often you and other household members didn't have enough to eat.
- Don't know / refuse to answer (Go to end of module)

Now we present you several statements that may be used to describe the food situation for a household. Please mark with an "x" if the statement was often true, sometimes true, or never true for you and other household members in the past 12 months.

68 You and other household members worried that food would run out before you got money to buy more. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

69 The food that you and other household members bought just didn't last, and there wasn't any money to get more. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

70 You and other household members couldn't afford to eat balanced meals. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

Only to answer if you live with children under 18 in your household:

Now we present you a few statements that may describe the food situation for households with children.

71 You or other adults in your household relied on only a few kinds of low-cost food to feed the child(ren) because you were running out of money to buy food. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

72 You or other adults in your household couldn't feed the child(ren) a balanced meal, because you couldn't afford it. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

73 If the child(ren) were not eating enough because you and other adult members of the household just couldn't afford enough food. Was that often, sometimes or never true in the past 12 months?

- Often true Sometimes true Never true
 Don't know / refuse to answer

The following few questions are about the food situation in the past 12 months for you or any other adults in your household:

74 In the past 12 months, since last [current month] did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes No Don't know / refuse to answer

75 If yes, how often did this happen?

- Almost every month
 Some months but not every month
 Only 1 or 2 months Don't know / refuse to answer

76 In the past 12 months, did you (personally) ever eat less than you felt you should because there wasn't enough money to buy food?

- Yes No Don't know / refuse to answer

77 In the past 12 months, were you (personally) ever hungry but didn't eat because you couldn't afford enough food?

- Yes No Don't know / refuse to answer

78 In the past 12 months, did you (personally) lose weight because you didn't have enough money for food?

- Yes No Don't know / refuse to answer

If you have answered "yes" to any one of 73-78, then continue with the questionnaire; otherwise, skip to PART 7 - FOLLOW-UP.

79 In the past 12 months, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?

- Yes No Don't know / refuse to answer

80 If yes, how often did this happen?

- Almost every month
 Some months but not every month
 Only 1 or 2 months Don't know / refuse to answer

PART 7 – FOLLOW-UP

Only to answer if there are children under 18 in your household:

81 In the past 12 months, did you or other adults in your household ever cut the size of any of the children's meals because there wasn't enough money for food?

Yes No Don't know / refuse to answer

82 In the past 12 months, did any of the children ever skip meals because there wasn't enough money for food?

Yes No Don't know / refuse to answer

83 If yes, how often did this happen?

- Almost every month
 Some months but not every month
 Only 1 or 2 months
 Don't know / refuse to answer

84 In the past 12 months, were any of the children ever hungry but you just couldn't afford more food?

Yes No Don't know / refuse to answer

85 In the past 12 months, did any of the children ever not eat for a whole day because there wasn't enough money for food?

Yes No Don't know / refuse to answer

Finally, we would like to ask you for your permission to contact you again for the project in one to two years' time. It is important for us to know how you are doing in terms of health.

If you agree, please provide your personal details below:

Name:

Mobile number:

Email address:

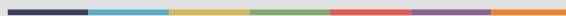
Place:

Date:

THANK YOU VERY MUCH FOR ANSWERING THESE QUESTIONS! PLEASE RETURN THIS FORM TO THE PERSON WHO GAVE IT TO YOU BEFORE YOU LEAVE.



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