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DIVERSITY AND HEALTH IN THE POPULATION

FINDINGS ON RUSSIAN, SOMALI AND KURDISH ORIGIN POPULATIONS IN FINLAND

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ACADEMIC DISSERTATION

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Abstract

Shadia Rask. Diversity and health in the population: Findings on Russian, Somali and Kurdish origin populations in Finland

The health of individuals and populations is in many ways affected by migration. Migration impacts not only individual persons and families moving from one country to another, but also communities and populations in origin, destination and transit countries, and even successive generations. Empirical evidence on the health of migrants is abundant, but mixed. Many studies have demonstrated that migrants are healthier than counterparts of similar socioeconomic backgrounds in the country of settlement. On the other hand, a number of studies show that poor mental health is more common among migrant populations. Large differences are found both between and within migrant populations. One challenge in migration and health research is using categorizations that produce relevant knowledge rather than false generalizations.

Research on migration and health is produced in increasingly diverse settings. Also new destination countries, such as Finland, have begun contributing to this line of research. Empirical evidence on the health of migrants in Finland has increased particularly in recent years. This study uses data from the Migrant Health and Wellbeing Study (Maamu, 2010–2012) to examine three significant population groups in Finland. Categorized based on birthplace and mother tongue, the studied populations were considered to consist of three different population groups: persons of Russian, Somali and Kurdish origin. The studied groups comprise more than one fourth of the foreign-born population in Finland, and include persons with various reasons for migration. A comparison group from the general population was selected from the Health 2011 Survey.

The aim of this study is to improve knowledge on populations of Russian, Somali and Kurdish origin in Finland. This study specifically examines mobility limitations, mental health symptoms and perceived discrimination. This is the first dissertation to examine the health of foreign-born populations in Finland using survey data. The focuses of this study were chosen based on the preliminary findings of the Maamu Study.

The findings of this study suggest certain concerns in the health of Russian, Somali and Kurdish origin populations in Finland. First, this study demonstrates that mobility limitations are more prevalent among Somali and Kurdish origin populations compared to the general population in Finland. Second, the prevalence of mental health symptoms was found to be significantly higher among Russian origin women and Kurdish origin men and women than in the general population. Adjusting for sociodemographic factors showed some reductions in the sizes of the increased odds for mobility limitation and mental health symptoms. An association between mental health symptoms and mobility limitation was also demonstrated. Last, perceived subtle discrimination was found to be more common than experiences of overt discrimination. Perceived discrimination increased the odds for poor self-reported health, limiting long-term illness or disability and mental health symptoms, also for those reporting subtle discrimination only.

The high prevalence of mobility limitation and mental health symptoms among the studied populations demonstrates a need for health promotion. Actions should be comprehensive and promote physical activity, healthy diet and social participation, but also address needs related to employment, social security and health services. Efforts against racism and discrimination are also highly needed, as perceived discrimination was shown to be associated with poor health outcomes. Supporting the wellbeing of diverse populations in Finland should include firmer advocacy of shared belonging. This study encourages future research to recognize the constructed and changing nature of groups and explore population health beyond the dichotomist frame of "us" and "them".

Tiivistelmä

Shadia Rask. Diversity and health in the population: Findings on Russian, Somali and Kurdish populations in Finland [Moninaisuus ja terveys väestössä: Havaintoja venäläis-, somalialais- ja kurditaustaisesta väestöstä Suomessa]

Maahanmuutolla on monenlaisia vaikutuksia yksilöiden ja väestöjen terveyteen. Maahanmuutto vaikuttaa paitsi yksittäisiin maasta toiseen muuttavin ihmisiin ja perheisiin, myös yhteisöihin ja väestöihin lähtö-, kohde- ja kauttakulkumaissa, sekä tuleviin sukupolviin. Maahanmuuttajien terveydestä on runsaasti tutkimustietoa, mutta näyttö on osin ristiriitaista. Monet tutkimukset ovat osoittaneet, että maahanmuuttajat ovat terveempiä kuin samassa sosioekonomisessa asemassa olevat verrokit uudessa kotimaassa. Toisaalta useat tutkimukset ovat osoittaneet, että maahanmuuttajien mielenterveys on heikompaa kuin väestössä keskimäärin. Maahanmuuttajaryhmien välillä ja näiden sisällä on suuria eroavaisuuksia. Yksi maahanmuuttoon ja terveyteen liittyvän tutkimuksen haasteista onkin käyttää luokituksia, jotka tuottavat aitoa tietoa, eivätkä virheellisiä yleistyksiä.

Maahanmuuttoon ja terveyteen liittyvää tutkimusta tehdään yhä moninaisemmissa ympäristöissä. Myös uudet kohdemaat, kuten Suomi, ovat alkaneet osallistua tähän tutkimukseen. Kotimainen tutkimusnäyttö maahanmuuttajien terveydestä on lisääntynyt erityisesti viime vuosien aikana. Tämä tutkimus käyttää aineistoa Maahanmuuttajien terveys- ja hyvinvointitutkimuksesta (Maamu, 2010–2012) tarkastellakseen kolmea merkittävää väestöryhmää Suomessa. Syntymämaan ja äidinkielen perusteella määriteltiin kolme eri väestöryhmää: venäläis-, somalialais- ja kurditaustaiset väestöt. Tutkittavat ryhmät muodostavat neljänneksen Suomessa asuvasta ulkomailla syntyneestä väestöstä, ja niihin sisältyy erilaisista syistä Suomeen muuttaneita henkilöitä. Vertailuryhmä koko väestöstä Suomessa poimittiin Terveys 2011 -tutkimuksesta.

Tämän tutkimuksen tavoitteena on parantaa tietoa venäläis-, somalialais- ja kurditaustaisesta väestöstä Suomessa. Tutkimus tarkastelee erityisesti liikkumisvaikeuksia, mielenterveysoireita ja koettua syrjintää. Tämä on ensimmäinen väestötutkimusaineistoon perustuva väitöskirja, joka tarkastelee ulkomailla syntyneen väestön terveyttä Suomessa. Tämän tutkimuksen aiheet valikoituivat Maamu-tutkimuksen alustavien tulosten pohjalta.

Tutkimuksen tulokset osoittavat tiettyjä huolenaiheita Suomessa asuvan venäläis-, somalialais- ja kurditaustaisen väestön terveydestä. Tutkimus osoittaa, että liikkumisvaikeudet ovat huomattavasti yleisempiä somalialais- ja kurditaustaisessa väestössä koko väestöön verrattuna. Lisäksi mielenterveysoireiden osoitettiin olevan merkittävästi yleisempiä venäläistaustaisilla naisilla sekä kurditaustaisilla miehillä ja naisilla koko väestöön verrattuna. Sosiodemografisilla tekijöillä vakioiminen pienensi liikkumisvaikeuksien ja mielenterveysoireiden lisääntyneitä todennäköisyyksiä jonkin verran. Myös mielenterveysoireiden ja liikkumisvaikeuksien välillä havaittiin yhteys. Kokemukset epäsuorasta syrjinnästä olivat yleisempiä kuin kokemukset avoimesta syrjinnästä. Syrjintäkokemukset lisäsivät heikon koetun terveyden, pitkäaikaissairauden tai vamman sekä mielenterveysoireiden todennäköisyyttä myös niillä, jotka raportoivat vain epäsuoria syrjintäkokemuksia.

Liikkumisvaikeuksien ja mielenterveysoireiden yleisyys tutkituissa väestöryhmissä osoittaa tarpeen terveyden edistämiselle. Toimenpiteiden tulisi olla kokonaisvaltaisia ja edistää paitsi liikuntaa, terveellistä ruokavaliota ja osallisuutta myös vastata työhön, sosiaaliturvaan ja terveyspalveluihin liittyviin tarpeisiin. Myös rasismin- ja syrjinnänvastaisia toimia tarvitaan pikaisesti, sillä koetun syrjinnän osoitettiin olevan kielteisellä tavalla yhteydessä tutkittujen väestöryhmien terveyteen. Suomen moninaisen väestön hyvinvoinnin edistäminen vaatii selkeämpää yhteenkuuluvuuden puolustamista. Tämä tutkimus kannustaa tulevia tutkimuksia tunnistamaan ryhmien rakennettu ja muuttuva luonne ja tarkastelemaan väestön terveyttä myös muusta kuin kaksijakoisesta lähtökohdasta "me" ja "muut".

Contents

List of original publications

This thesis is based on the following publications:

I   Rask, S.; Sainio, P.; Castaneda, A. E.; Härkänen, T.; Stenholm, S.; Koponen, P.;
       Koskinen, S. (2016). The ethnic gap in mobility: a comparison of Russian, Somali
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       16*(340). doi: 10.1186/s12889-016-2993-1.

II   Rask, S.; Suvisaari, J.; Koskinen, S.; Koponen, P.; Mölsä, M.; Lehtisalo, R.;
       Schubert, C.; Pakaslahti, A.; Castaneda, A. E. (2016). The ethnic gap in mental
       health: a population-based study of Russian, Somali and Kurdish origin migrants in
       Finland. *Scandinavian Journal of Public Health 44*(3):281–290.

III   Rask, S.; Castaneda, A. E.; Koponen, P.; Sainio, P.; Stenholm, S.; Suvisaari, J.;
       Juntunen, T.; Halla, T.; Härkänen, T.; Koskinen, S.(2015). The association between
       mental health symptoms and mobility limitation among Russian, Somali and
       Kurdish migrants: a population based study. *BMC Public Health 15*(275). doi:
       10.1186/s12889-015-1629-1.

IV   Rask, S.; Elo, I. T.; Koskinen, S.; Lilja, E.; Koponen, P.; Castaneda, A. E. The
       association between discrimination and health: findings on Russian, Somali and
       Kurdish origin populations in Finland. Submitted.

The publications are referred to in the text by their roman numerals. The original
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Abbreviations

BMI	body mass index
CI	confidence interval
CMDs	common mental disorders
CRT	Critical Race Theory
DSM	Diagnostic and Statistical Manual of Mental Disorders
EU	European Union
FSU	Former Soviet Union
HSCL	Hopkins Symptom Checklist
ICD-10	International Classification of Diseases, 10th revision
ICF	International Classification of Functioning, Disability & Health
IOM	International Organization for Migration
LLTI	limiting long-term illness or disability
Maamu	Migrant Health and Wellbeing Study
NA	not applicable
OECD	Organization for Economic Co-operation and Development
OR	odds ratio
PHCR	Public Health Critical Race Praxis
PTSD	posttraumatic stress disorder
SCL-90	Symptom Checklist-90
SDH	social determinants of health
SES	socioeconomic status
SRH	self-rated health
THL	Finnish National Institute for Health and Welfare
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees (also known as United Nations Refugee Agency)
UK	United Kingdom
US	United States
WHO	World Health Organization
YLDs	years lived with disability

1 Introduction

The topic of migration is both current and ancient. As a phenomenon, migration has existed since the beginning of human history (M. Castles, de Haas & Miller, 2014a). At the same time, the absolute numbers of people moving are now greater than ever (United Nations, 2013). The processes of migration and urbanization are influenced by various forces such as climate change and international political and economic crises. Today international migration is the leading factor determining the size, rate of change, and composition of the population in most European countries (Coleman, 2008). Among them is Finland, with a long history of emigration, but relatively short history of net immigration (Heikkilä & Pikkarainen, 2008).

Research on migration and health has become increasingly established (Rechel, Mladovsky, Ingleby, Mackenbach & McKee, 2013). Also new destination countries, such as Finland, have begun contributing to this line of research. Research on migration has traditionally focused on economic and social aspects of migration (Rodriguez-Lainz & Castaneda, 2014), but the increase in the diversity and volume of migration has proliferated research on migration and health. The health of migrants is a topical issue (Marmot, 2016), and empirical evidence is abundant, but mixed. An increasing body of literature suggests considerable heterogeneity in the health of migrant populations, challenging the usefulness of examining persons with a history of migration as one population group. Still knowledge on the health of specific population groups is needed for various causes, such as developing and improving health services and individual clinical care (R. S. Bhopal, 2013; Rechel et al., 2012; Rechel, Mladovsky & Deville, 2012). Understanding and responding to health problems that are related to or caused by a person's migrant status is also needed to treat people with dignity (Marmot, 2016). Migration impacts not only the lives of individual persons and families, but also communities and populations in origin, destination and transit countries, and even successive generations (R. S. Bhopal, 2013; Rodriguez-Lainz & Castaneda, 2014).

This thesis was motivated by the growing diversity in Finland and the increasing availability of survey data on the topic of migration and health. The studies summarized in this thesis attempt to improve knowledge on the health of Russian, Somali and Kurdish origin populations in Finland. Specifically, these studies investigate mobility limitations, mental health symptoms and perceived discrimination, the association between mental health symptoms and mobility limitations, and the association between perceived discrimination and indicators of health. Mobility limitations, mental health and perceived discrimination where chosen as the focuses of this study, since these topics were among the findings that raised concerns in the preliminary findings of the Migrant Health and Wellbeing Study (Maamu).

2 Conceptual framework

2.1 Definition of key concepts

The term population is fundamental to population sciences (Krieger, 2012a). The *Dictionary of Epidemiology* (p. 218) defines a population as "the inhabitants of a given country or area" or "the whole collection of units from which a sample may be drawn -- intended to give results that are representative of the whole population" (Porta, 2014). Populations are commonly defined according to borders of geographic regions, such as nations or communities, as the concept of nation-state has inseparably influenced the conceptualization of population (Wimmer & Glick-Schiller, 2002). Populations can also be other relevant groups, such as employees, persons with disabilities, or ethnic groups (Kindig & Stoddart, 2003). The term group is another core concept in social sciences, although the term is seldom defined (Brubaker, 2002). In the same way populations are often approached primarily as technical statistical entities, with limited discussion as to what defines populations (Krieger, 2012a).

2.1.1 Concepts related to migration

No universal definitions exist for the terms migrant or immigrant. The International Organization for Migration (IOM) defines a migrant as a person who moves across an international border or within a State away from his or her habitual place of residence, regardless of the person's legal status; whether the movement is voluntary or involuntary; what the causes for movement are; or what the length of stay is (International Organization for Migration, 2011). Migration thus comprises any kind of movement of people. Immigration is defined as a process by which non-nationals move into a country for the purpose of settlement (International Organization for Migration, 2011). This leads to the definition of an immigrant as a person moving to a country for permanent residence.

Other central terms related to migration include refugee and asylum seeker. By definition of the Convention Relating to the Status of Refugees, a refugee is 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 opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country" (UN General Assembly, 1951). An asylum seeker is a person who seeks safety from persecution or serious harm in a country other than his or her own and awaits a decision on the application for refugee status under relevant international and national instruments (International Organization for Migration, 2011). Contrary to IOM, the United Nations High Commissioner for Refugees (UNHCR) defines migrants as persons who move voluntarily, thus excluding refugees and asylum seekers (Edwards, 2016; United Nations High Commissioner for Refugees, 2006).

The most common indicators that are used to define migrants are country of birth or nationality (OECD, 2012). Country of birth is often considered an objective, stable and comparable indicator of migrant status (Rechel et al., 2012). Its limitations include that it is unable to distinguish different ethnic groups born in the same country. Other commonly used indicators include mother tongue, parental origin or country of birth, length of stay, legal status, residency, and reason for migration (Hannigan, O'Donnell, O'Keeffe & MacFarlane, 2016). The terms reference, control or comparison group are used for the group against which a population is being studied and compared to (R. Bhopal, 2004). The terms majority population, native and general population are often used to refer to the comparison group. The term majority population is frequently used as a synonym for White or European, while the term native is used, although not recommended, to refer to populations born, or with family origins, in the host country. The general population refers to the population being studied, irrespective of race or ethnicity. The comparison group permits an analysis of similarities and differences, which is fundamental to epidemiology (R. S. Bhopal, 2013).

Other concepts related to migration include race and ethnicity. Race and ethnicity are among the most commonly used epidemiological variables (Afshari & Bhopal, 2010), and both concepts are widely applied in migration and health research (R. Bhopal, 1997). Still there is no consensus on the definition of ethnicity or race, or their appropriate use in the scientific study of health. Ethnicity is commonly understood as a multi-faceted quality that refers to the group to which people belong to, and/or are perceived to belong to, based on shared characteristics, such as origin, but particularly cultural traditions and languages (Bhopal, 2004). The modern concept of race defines race as a social construct and not a biologic reality (Jones, 2001), although ultimately this social concept is based on physical and hence biological factor (R. Bhopal, 2004).

Constructs like race have been used to establish the line between those who belong and those who do not belong (Jones, 2001). Also ethnicity provides mechanisms for exclusion because of the centrality of boundaries in defining ethnicity and the discourses and practices related to ethnicity that are essentially subordinating (Anthias, 2001). This relational dimension of ethnicity has, however, been largely missing from social epidemiologic and health equity research (Ford & Harawa, 2010). The current preference of measuring ethnicity is on self-assessment, rather than birthplace of self or ancestors, language or geographical origins (R. S. Bhopal, 2013). In support of this some have argued that classifying a person based on birth place, citizenship, nationality, or parenthood is no indicator of commitment to this ancestry (Constant, Gataullina & Zimmermann, 2009).

A major challenge in migration research is in using categorizations that produce insight rather than false generalizations (Krasnik, 2015). Four major categories of problems related to the concept of ethnicity have been identified by Senior and Bhopal (1994), and these problems are equally applicable to migration status (R. S. Bhopal, 2013): measurement difficulties; heterogeneity of populations; ethnocentricity; and ambiguity about the purpose of using these variables. The concepts of ethnicity and race can also be challenged, and the formation and use of such groups can be contested as units

of analysis (Brubaker, 2009). Particularly in public discourse the nuanced statistical categories related to migration background are often transformed into a homogenized social category (Elrick & Farah Schwartzman, 2015). Therefore some have rejected the use of the term immigrant due to the derogatory discourses associated with the term, implying otherness, dichotomy, and an inherent and stable identity (Mahmoud, 2013). At the same time, the identity of being an immigrant is not easily discarded as various factors from human curiosity to documents and bureaucracy are constant reminders of country of origin and birth place (R. S. Bhopal, 2013). This applies especially to persons that are visibly different from most people in the host country.

2.1.2 Diversity and discrimination

Migration is the driving force behind diversity in the population (R. S. Bhopal, 2013). At the same time, diversity exists without migration, as there is no such thing as a homogeneous society (Diaz, Thulesius & Razum, 2016). The term diversity has several definitions, which capture the diversity of the term diversity (Collins English Dictionary; Merriam-Webster). On the one hand, diversity is defined as the state or fact of being different or unlike. On the other hand, the term is used to refer to the inclusion of different types of people representing e.g. different races, cultures, national origins, and religions. Diversity can be conceptualized as relative and not absolute, and this relational conception of diversity incorporates understanding of the specific power relations that exist in acts of differentiation (Dobusch, 2017). Related to diversity is the concept of belonging. Belonging is characterized as a sense of connection and solidarity that can be examined e.g. as the degree to which individuals have established support networks within affirming communities (Lee & Brotman, 2011). A sense of belonging can be defined as emotional attachments and feelings of being at home, which occur at the individual level (Toivanen, 2014).

There are inherent theoretical challenges in concepts like diversity, which are used to categorize and signify "difference" (Kirkham & Anderson, 2002). Nevertheless, the capacity and tendency to differentiate people from others is universally a human characteristic, both individually and as groups (R. S. Bhopal, 2013). This tendency includes classification, ethnocentrism, collective identity, recognition of individuals by face, formation of social structures, judging others, making comparisons, and an awareness of self-image. Specific differences between human societies include e.g. differences in customs and traditions. It is these universal and specific differences that are used to subgroup and divide human populations (R. S. Bhopal, 2013). As defined by Anthias (2001), a social division involves a classification of a population and a range of related systematic social processes, which serve to produce socially meaningful and systematic practices and outcomes of inequality. As such, social divisions are powerful sources of discrimination (Bhui, 2016).

Conceptual clarity on discrimination and racism is necessary for the scientific study of discrimination and health (Krieger, 2012b). Discrimination can be defined as the

unequal treatment of individuals or a socially defined group (N. Krieger, 2000). A central part of the definition of discrimination is its focus on behavior (Pager & Shepherd, 2008). Discrimination is distinct from racial prejudice (attitudes), racial stereotypes (beliefs), and racism (ideologies), although the terms discrimination and racism are often used interchangeably (Quillian, 2006). Discrimination includes discriminatory treatment based on various factors e.g. gender, sexuality, disability, age, social class, or religion. Racial/ethnic discrimination is justified by the ideology of racism (N. Krieger, 2000). The exploitative and oppressive realities of racism and discrimination simultaneously define racial/ethnic groups and cause racial/ethnic social inequalities that become embedded as racial/ethnic health inequities (Krieger, 2001a; Krieger, 2012b).

2.2 Population health: concept and focus

Population health is defined as a conceptual framework that is concerned with why some populations are healthier than others (Young, 1998). The term refers to the health of a population as measured by indicators of health status and as influenced by social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services (Dunn & Hayes, 1999). Population health can also be interpreted as a goal in itself, meaning the achievement of measurable improvements in the health of a defined population (Kindig & Stoddart, 2003). Population health focuses on interrelated conditions and factors that influence the health of populations over the life course, identifies systematic variations in their patterns of occurrence, and applies this knowledge to develop and implement policies and actions to improve the health and wellbeing of populations (Dunn & Hayes, 1999; M. Marmot, 2004). While population health and public health are distinct from each other in that the former describes the state of population health whereas the latter includes the policies, programs, practices, procedures, and institutions required to achieve the desired state of population health (Porta, 2014), resource allocation and policy development are closely related to population health (Young, 1998).

2.2.1 Mobility limitations

The concept of disability is complex and multidimensional. The medical model has traditionally defined disability in terms of individual deficits. The World Health Organization (WHO) conceptualized the term more broadly in 1980, as any restriction or lack of ability to perform an activity within the range considered normal for a human being (World Health Organization, 1980). Building on this and the work of Nagi (1964), the sociomedical model defined disability as difficulty in performing activities in any domain of life, with an emphasis on the role of the environment in the disablement process (Verbrugge & Jette, 1994). The paradigm of disability studies has shifted further to viewing the exclusion of people with impairments, "disablism", as a social pathology

(Goodley, 2017). Disability is not seen as an attribute of an individual, but instead as a complexity of conditions, many of which are created by the social environment. Disability can be examined on a continuum from minor difficulties in functioning to major impacts on a person's life (World Health Organization, 2011).

The most contemporary disability framework – the International Classification of Functioning, Disability and Health (ICF) – integrates previous medical and social models of disability (World Health Organization, 2001). Proposed by the WHO in 2001, the ICF defines disability and functioning as the outcomes of dynamic interactions between health conditions, environmental factors, and personal factors. Disability is used as an umbrella term for impairments, activity limitations and participation restrictions to represent the negative aspects of the interaction between a person's health conditions and his or her contextual factors (environmental and personal factors). Functioning is used as an umbrella term for body function, body structures, activities and participation to represent the positive or neutral aspects of the interaction between a person's health conditions and his or her contextual factors (World Health Organization, 2013).

Mobility is an essential part of physical functioning and it is included in the activities and participation component of the ICF. Mobility is defined in the ICF as "moving by changing body position or location or by transferring from one place to another, by carrying, moving or manipulating objects, by walking, running or climbing, and by using various forms of transportation" (World Health Organization, 2001). The term "mobility" is also used in other contexts to refer to the movement of people (i.e. cross-border mobility) and the social movement of individuals in a system of social hierarchy (i.e. social mobility).

Several factors underline the importance of examining population health from the perspective of mobility. Mobility limitations predict subsequent disability, dependence, and mortality (Hardy, Kang, Studenski & Degenholtz, 2011; Hirvensalo, Rantanen & Heikkinen, 2000). Mobility difficulties are often an initial sign of deteriorating functioning and an indicator of pre-clinical stage of disability (Guralnik, Ferrucci, Simonsick, Salive & Wallace, 1995). Over time persons with mobility disability experience lower cognitive social capital, measured as trust in neighbors and public institutions (Norrbäck, de Munter, Tynelius, Ahlström & Rasmussen, 2015). Mobility limitations also increase the risk of low health-related quality of life and not participating in society (Holmgren, Lindgren, de Munter, Rasmussen & Ahlstrom, 2014). At the same time, after the onset of mobility difficulties, further disability and mortality could often be prevented, for instance through physical activity (Hirvensalo et al., 2000). There is evidence that mobility problems appear earlier in life in low and middle income countries as compared to high income countries (Miszkurka et al., 2012). Overall, mobility limitations in the population are projected to increase as a result of population ageing (Iezzoni, McCarthy, Davis & Siebens, 2001). Population ageing is also an important concern in Finland (Heikkilä & Pikkarainen, 2008), and projections of population ageing generally apply to foreign-born populations (Rechel et al., 2013; White, 2006).

2.2.2 Mental health

The importance of mental health is widely recognized and exemplified in the understanding that there can be no health without mental health (Prince et al., 2007). By definition of the WHO, mental health is a state of well-being in which individuals realize their potential, can cope with the normal stresses of life, can work productively, and are able to contribute to their community (World Health Organization, 2016). The term mental illness is commonly used to refer to all mental disorders, which are understood to comprise a range of problems and varying symptoms. Various models of mental illness are found in literature, which differ in how they emphasize biological, psychological and social dimensions of mental health. Differences in conceptual models of mental health are demonstrated across cultures (Karasz, 2005). Two distinct approaches to mental health are found in cross-cultural psychiatric research: the etic approach advocating the universality of mental illness and the emic approach arguing that mental illness categories should be developed within cultures (V. Patel, 1995). Following the etic approach, mental illnesses are most commonly diagnosed according to the tenth revision of the International Classification of Diseases (ICD-10) or the Diagnostic and Statistical Manual of Mental Disorders (DSM). The ICF framework is also applicable for assessing mental disorders (Reed, Spaulding & Bufka, 2009), and complements the ICD-10 (Baron & Linden, 2008).

The term common mental disorders (CMDs) is used to refer to two main diagnostic categories: depressive disorders and anxiety disorders (World Health Organization, 2017). Depression is characterized by persistent sadness, loss of interest, feelings of guilt or low self-worth, disturbed sleep or appetite, tiredness, and poor concentration, which substantially impair an individual's ability to function or cope with daily life (World Health Organization, 2017). Depressive symptoms are viewed as the first stage of symptoms, which with increasing severity may lead to major depression disorder (Ayuso-Mateos, Nuevo, Verdes, Naidoo & Chatterji, 2010). Anxiety is, in turn, characterized by various feelings of anxiety and fear (World Health Organization, 2017). Symptoms of anxiety can range from mild to severe. Mental health symptoms may also become present as somatic symptoms, i.e. somatization (Kapfhammer, 2006). Somatization refers to the expression of medically unexplained physical symptoms, and it is often associated with mood and anxiety problems (Rohlof, Knipscheer & Kleber, 2014). Overall, comorbidity, meaning the co-occurrence of mental disorders, and mixed syndromes with mixed symptoms are common in CMDs (Kessler, Chiu, Demler, Merikangas & Walters, 2005; Krueger, 1999).

The importance of mental health, both for individuals and as a research focus, is uncontested. Mental health disorders are among the five major non-communicable disease groups responsible for the majority of the disease burden in Europe, and a third of the population in the European Union (EU) is estimated to suffer from a mental disorder each year (Wittchen et al., 2011). Mental and substance use disorders are the leading cause of years lived with disability, accounting for 7 percent of all disability-adjusted life years in 2010 (Whiteford et al., 2013). Mental health trends are also affected by changing demography, including population ageing and the changing composition of the population.

The global burden of mental and substance use disorders increased between 1990 and 2010 by almost 40 percent, mainly due to population growth and ageing.

2.3 Theories of migration and health

Theories of migration attempt to conceptualize the complex relation that exists between migration and broader processes of development and global change. Migration theories can be divided into those that focus on the causes of migration processes and those that focus on the impacts of migration for sending and receiving communities and societies (M. Castles, de Haas & Miller, 2014b). The earliest migration theory is commonly regarded as the 'push–pull' model developed by Ravenstein (1885), which describes migration as the interplay between factors pushing people out of their place of origin and factors pulling people toward the place of destination. This model is incorporated to varying degrees in all other theories of migration.

Major theories on the causes of migration can be divided into two main paradigms: functionalist theories and historical-structural theories. Functionalist migration theories view migration as a positive phenomenon that serves the interests of most people and contributes to greater equality within and between societies (M. Castles, de Haas & Miller, 2014b). Neoclassical theories, for instance, emphasize the importance of relative wage differentials and individual cost-benefit calculations, leading people to move from low-wage, labor-surplus areas to high-wage, labor-scarce regions (Massey et al., 1993). Historical-structural theories, on the other hand, view migration as reinforcing social and geographical inequalities due to the social, economic, cultural and political structures that constrain and direct migration (M. Castles, de Haas & Miller, 2014b). Examples of such theories include the world system theory and segmented labor market theory (Massey et al., 1993).

Another set of theories explain the continuation of international migration and the impacts of migration for sending and receiving communities. Migrant networks and immigrant communities are a central part of migration as these connections lower the costs and risks of movement and increase the expected net returns to migration (Massey et al., 1993). Key theories which address the processes of settlement or ethnic minority formation in destination countries include classical assimilation theory (Park, 1928) and segmented assimilation theory (Zhou, 1997). Despite varying approaches, different theories of migration can be complementary and increase understanding of the different levels involved in migration: the individual, the household, the national, and the international (Massey et al., 1993). Theories also develop to address new or increasingly important aspects of migration (Arango, 2000), such as the sociology of forced migration (S. Castles, 2003).

Still others argue that migration theories that treat immigrants as a homogeneous group are becoming less relevant in the presence of ethnically and culturally diverse populations (Constant et al., 2009). Migration theories have been criticized for consistently disregarding both the social and cultural divisions within nation-states, and

overlooking the experiences, norms and values that are shared by migrants and natives because both are embedded in social, economic and political processes, networks, movements and institutions that exist both within and across state borders (Glick-Schiller & Caglar, 2009).

Theories on migration and health have steadily increased over the past two decades (Acevedo-Garcia, Sanchez-Vaznaugh, Viruell-Fuentes & Almeida, 2012). This is essential, since adequate theory is a necessity to gain clarity on the causes of social inequalities in health and the barriers to reducing them (Krieger, 2014; Krieger, 2001b). Though research on migration and health is pursued with genuine efforts to eliminate health disparities (Edberg, Cleary & Vyas, 2011), shared observations of health disparities do not lead to common understandings of cause (Krieger, 2001b). Even cross-sectional studies reflect notions of causation, raising the complex question of accountability and agency: who and what is responsible for population patterns of health, disease, and wellbeing (Krieger, 2001b)?

Selection is one principal explanation for health findings among migrant populations. Theory suggests that migrant health selection is produced by the "push–pull" factors; the demand of and expected gains from migration will lead to the healthiest individuals being those who migrate. The selectivity of migration explains that migrants do not generally represent a random sample of the population in their country of origin, but instead they are positively selected on health and other observed and unobserved characteristics (Jasso, Massey, Rosenzweig & Smith, 2004). Migrant selection comprises two sides: self-selection and the selection imposed by migration policies (Constant, Garcia-Munoz, Neuman & Neuman, 2017). Selection may also aim to identify vulnerable individuals, such as in the quota refugee program, also partaken by Finland (Ministry of the Interior, 2017b). A different side of selective migration is health-selective emigration, also referred to as the "salmon bias" hypothesis. This hypothesis suggests that some persons return to their countries of origin when becoming ill, resulting in the better average health status of those remaining (Elo, Mehta & Huang, 2011). Evidence supports health selection in both migration and emigration (Bostean, 2013). Health selection is particularly strong at working ages, while refugees and persons moving as family members are not as selected on health and socioeconomic status as labor migrants (Elo et al., 2011). Involuntary migration often implies entry to the host society in a subordinate position, with little power to negotiate, and increased vulnerability (Malmusi, Borrell & Benach, 2010). This vulnerability is not only related to pre-migration experiences; low position and income in the host country cause health disadvantage for refugees (Marmot, 2016).

In addition to explanations of selection or data artefacts, research on migration and health has often reflected and drawn on acculturation theory (Acevedo-Garcia et al., 2012). Acculturation is broadly defined as the process by which individuals adopt the attitudes, values, customs, beliefs, and behaviors of another culture (Clark & Hofsess, 1998). At the same time, unidimensional theories of acculturation have received criticism for emphasizing cultural explanations of health (Hunt, Schneider & Comer, 2004; Viruell-Fuentes, 2007; Viruell-Fuentes, Miranda & Abdulrahim, 2012). Scholars have voiced

legitimate concern that promoting cultural factors as the focus of intervention without drawing attention to the multiple dimensions of inequality within which people operate is likely to contribute to victim-blaming explanations and advance the erroneous idea of culture as the "source of dysfunction" (Santiago-Irizarry, 1996; Viruell-Fuentes, 2007).

Social epidemiology provides a contextualized focus on the social production of disease (Krieger, 2014). From this perspective, the health of populations is understood to be broadly related to features of society and its social and economic organization (M. Marmot & Wilkinson, 2006). Various socioeconomic factors such as income, wealth, and education are understood as fundamental causes ("causes of the causes") of negative health outcomes (Braveman & Gottlieb, 2014). Social determinants of health (SDH) are understood as the conditions of daily life of individuals and the wider set of structural forces and systems in society, which are responsible for a major part of health inequities between and within countries (CSDH, 2008). Various theoretical models of SDH exist, such as the framework of the WHO Commission on Social Determinants of Health (Solar & Irwin, 2010). The framework of SDH has, however, been less commonly used in migration and health research (Acevedo-Garcia et al., 2012).

Some fairly recent multi-level frameworks have tailored social epidemiology to the context of migration and health, and included an understanding of patterns of population health within and between the social and ecological systems of sending and receiving countries (Acevedo-Garcia et al., 2012; Viruell-Fuentes et al., 2012). Central perspectives include social determinants in the sending and receiving countries; health distributions in the sending and receiving countries; push and pull factors; health selection; and the influence of the life course on immigrant health (Acevedo-Garcia et al., 2012). Overall, the importance of the life course through the cumulative interplay of exposure, susceptibility and resistance is increasingly acknowledged (Elo, 2009; Krieger, 2012b). Following a determinants-of-health approach, a trajectory model has been proposed to understand health disparities among immigrant populations that includes the following nine domains: migration experience; social adjustment; socioeconomic status (SES); social support; neighborhood characteristics; health status; health knowledge and practices; access to care; perceived discrimination (Edberg et al., 2011). Yet no research design is fully capable of controlling for the myriad of environmental variables that change due to migration (Friis, Yngve & Persson, 1998).

3 Review of literature

3.1 Mobility limitations in the studied populations

Empirical evidence on the health of migrants is abundant, but mixed. Many studies have documented a "healthy migrant effect" with migrant populations being healthier than the native born of similar ethnic and socioeconomic backgrounds (Elo et al., 2011). Migrants have also been shown to display lower mortality risk as compared to the host population (Syse, Strand, Næss, Steingrímsdóttir, Kumar, 2016). Other studies demonstrate that migrant populations have poorer health outcomes than the general population (Lindström, Sundquist & Östergren, 2001; Nielsen SS & Krasnik A, 2010; Rechel, Mladovsky, Ingleby, Mackenbach & McKee, 2013). Also mortality has been shown to be higher in some immigrant populations as compared to peers in the host country (Hollander, 2013; Ikram et al., 2016; Nørredam, Olsbjerg, Petersen, Bygbjerg & Krasnik, 2012). Newcomers are often found to be healthier than persons in the general population, but over time the health of immigrants shows signs of deterioration (Fennely, 2005; Rechel, Mladovsky, Ingleby, Mackenbach & McKee, 2013; Syse et al. 2016). Refugees and asylum seekers are shown to be particularly vulnerable to poor health (Gerritsen et al., 2006; Masmas et al., 2008). Also undocumented migrants are exposed to particularly precarious conditions (Woodward, Howard & Wolffers, 2014)

Some international studies have examined mobility limitations and physical functioning among migrants. Evidence from the US has demonstrated significant differences in the risk of physical and mental disability between immigrant populations (Huang et al., 2011). Elo and colleagues (2011) found that foreign-born black populations reported lower levels of disability than US-born blacks, measured as physical activity limitations and personal care limitations. Dallo and colleagues (2015) examined functional limitations among older Arab, Asian, black, Hispanic, and white Americans in the US, and found that foreign-born Arabs were more likely to have a functional limitation compared to whites, while the other studied groups were less likely than white Americans to report functional limitations. The French study of Lert and colleagues (2007) demonstrated a heterogeneous association between ethnicity and functional limitation, reporting an increased rate of functional limitations among European-born migrant men and a reduced rate of functional limitations among non-European born migrant men compared to French-born men. Many studies have also shown that immigrant populations are at an increased risk of obesity and insufficient physical activity (Ujcic-Voortman, Baan, Seidell & Verhoeff, 2012), which are known to be important risk factors for mobility limitations (Koster et al., 2007; Ostbye, Taylor, Krause & Van Scoyoc, 2002; Sainio, Martelin, Koskinen & Heliövaara, 2007; Stuck et al., 1999).

Closest to the context of Finland, the Swedish study of Norrbäck and colleagues (2015) demonstrated that mobility disability was more common among non-Swedish than

Swedish nationals. In one of the first Nordic studies to examine disability among foreign-born and native-born populations, Pudaric and colleagues (1998) demonstrated that as compared to Swedes, migrants from Finland, Southern Europe and other regions (i.e. countries in Asia, Africa, and Latin America) had increased odds for impaired mobility, meaning difficulties or inability to run 100 meters. Using the same data, another Swedish study showed that persons from Finland, Southern Europe and developing countries had increased odds for impaired instrumental activities of daily living, meaning needing assistance in shopping, cooking and housework (Pudaric, Sunquist, Johansson, 2003).

Attempts of cross-country and -study comparisons require careful consideration, including an awareness of the selection mechanism behind migration. Because of differences in selection, even studies examining population groups from the same country of origin may not in fact be comparable. For example, Kurdish migration to Germany has occurred in part as former labor recruitment activities (Ammann, 2005), and is therefore potentially differently select than the migration of Kurds to Finland. Russian migration to the US and Israel has had an emphasis on Jewish migrants (Mehta & Elo, 2012), which is unlike the migration of Russians to Finland. The chosen reference group also needs to be acknowledged: for example immigrants from the former Soviet Union (FSU) to the US demonstrate lower levels of disability compared to Russians in Russia (Mehta & Elo, 2012), but higher levels of disability compared to the native-born in the US (Huang et al., 2011). Similarly differences in poor self-rated health have been demonstrated between Finns living Finland and Finns who have moved to Sweden: the odds for poor self-rated health was higher among Finnish women living in Sweden as compared to Finnish women in Finland, but the odds for poor self-rated health among both these groups were higher as compared to Swedes (Westman, Martelin, Härkänen, Koskinen & Sundquist, 2008).

Research on mobility limitations and physical functioning among Russian, Somali and Kurdish origin populations are scarce, and therefore relevant findings on physical health and health behavior are also examined. The physical health of immigrants from the FSU or Russia has been examined mainly in countries with large immigrant populations from this region. An Israeli study on immigrants from the FSU reported a higher rate of diseases and poor health as compared to Israeli Jews (Baron-Epel & Kaplan, 2001). Huang and colleagues (2011) explained the higher prevalence of mental and physical disability among immigrants from the FSU as compared to US-born counterparts by the large proportion of Eastern Europeans that migrated to the US as refugees, exposure to stressful circumstances surrounding the collapse of the former communist regimes and a high prevalence of risky behaviors. Also a Swedish study found that persons born in Eastern Europe or the FSU had an increased risk for reporting poor health compared to Swedish-born counterparts (Sungurova Y, Johansson SE & Sundquist J, 2006).

Some studies have examined the physical health of immigrant populations from Somalia. Kalliokoski and colleagues (2013) have reported relatively weak grip strength among Somali women in comparison to Swedish women. Previous studies have also demonstrated a high prevalence of obesity among immigrants from Somalia, particularly women (Gele & Mbalilaki, 2013). One reason for this is the high level of physical inactivity, which has been attributed e.g. to tradition, religion, and lack of knowledge, time

and motivation (Devlin et al., 2012; Gele, Pettersen, Torheim & Kumar, 2016; Persson, Mahmud, Hansson & Strandberg, 2014). On the other hand, immigrants from Somalia have been shown to have a low or decreased risk of poor self-rated health as compared to the Danish population (Dinesen, Nielsen, Mortensen & Krasnik, 2011), and also as compared to other migrant groups. For example, a Dutch study compared the physical and mental health of Somali and Iranian immigrants and found that Somali immigrants had a lower risk of chronic conditions than Iranian immigrants (Gerritsen et al., 2006).

Several studies have been conducted on the health of immigrant populations from Iraq and Iran, with some specifically examining Kurdish populations. The Danish study of Dinesen and colleagues (2011) found that immigrants from Iraq were among the groups at greatest risk of poor self-rated health. Several Swedish studies have demonstrated poor physical health among Kurdish immigrants (Taloyan, Johansson, Johansson, Sundquist & Kocturk, 2006; Taloyan, Sundquist & Al-Windi, 2008). Elderly Iranian immigrants in Sweden have been shown to have a poorer physical health status, a lower physical activity level, worse lower extremity physical function, but better grip strength as compared to their Swedish counterparts (Mosallanezhad Z, Hörder H, Salavati M, Nilsson-Wikmar L & Frändin K, 2012). A high prevalence of physical inactivity and obesity has been reported among Iranian migrants in Sweden (Daryani et al., 2005; Koochek A, Johansson SE, Kocturk TO, Sundquist J & Sundquist K, 2008; Lindström M & Sundquist K, 2005; Mosallanezhad Z et al., 2012). Swedish scholars have also demonstrated that the number of negative life events in the country of origin was significantly associated with deteriorated health among Iraqi and Kurdish refugees (Söndergaard, Ekblad & Theorell, 2001).

Empirical evidence on the health of migrants in Finland has increased in recent years. The first Finnish interview survey on the living conditions of four major migrant groups was conducted in the beginning of the 2000s (Pohjanpää, Paananen & Nieminen, 2003). Following this, the Migrant Health and Wellbeing Study (Maamu) was conducted in 2010–12 (Castaneda, Rask, Koponen, Mölsä & Koskinen, 2012) and the Survey on Work and Well-Being among People of Foreign Origin in 2014 (Nieminen, Sutela & Hannula, 2015). The first register-based study on mortality among migrant populations in Finland demonstrated lower mortality risk among migrants than persons born in Finland (Lehti, Gissler, Markkula & Suvisaari, 2017). Another register-based study showed that particularly persons from low-income countries in Africa, the Middle East and Asia showed a survival advantage compared to corresponding low-income groups in the settled majority population (K. Patel et al., 2017). In addition to these, Finnish research on migration and health has been largely produced using data from the Maamu Study. Overweight and obesity have been shown to be more common among Somali and Kurdish origin women than in the general population (Bastola, Koponen, Härkänen, Gissler & Kinnunen, 2017; Kinnunen et al., 2017). Some studies have examined health behavior (Adebayo et al., 2017), while others have focused on women (Idehen et al., 2017; Koukkula, Keskimaki, Koponen, Mölsä & Klemetti, 2016). Overall, existing evidence suggests both better and poorer physical health among Russian, Somali and Kurdish origin populations in Finland (Skogberg et al., 2016; Skogberg et al., 2017).

3.2 Mental health symptoms in the studied populations

A number of studies show that migrant populations are at an increased risk of mental ill health compared to the population in the country of settlement (Close et al., 2016; de Wit et al., 2008; Missinne & Bracke, 2012). A review on the mental health of migrants to Sweden reported differing but often increased risks of mental disorders among migrant groups (Gilliver, Sundquist, Li & Sundquist, 2014). A Norwegian review found similarly that migrant populations, in particular adults from low and middle income countries, had a higher degree of mental health problems compared to the general population (Abebe, Lien & Hjelde, 2014). Several Danish studies have also examined the mental health of migrant populations (e.g. Nielsen, Jensen, Kreiner, Nørredam & Krasnik, 2015; Nørredam, Garcia-Lopez, Keiding & Krasnik, 2009), suggesting that also labor migrants may be susceptible to poor mental health. Particularly refugees and asylum seekers have been shown to be vulnerable to poor mental health (Close et al., 2016; Lindert, Ehrenstein, Priebe, Mielck & Brahler, 2009; Nørredam et al., 2009). A systematic review on the long-term mental health of war-affected refugees found that greater exposure to pre-migration traumatic experiences and post-migration stress were consistently associated with depression and anxiety, while a poor socioeconomic status in the host country was associated with depression (Bogic, Njoku & Priebe, 2015). A review on somatization in refugee populations concluded that general psychopathology, but also traumatization, experiences of torture, and stigmatization of psychiatric care explained the high number of somatic symptoms in refugee populations (Rohlof et al., 2014).

Research on the mental health of Russian origin population has been conducted in various settings. In Israel, migrants from the FSU have been shown to display higher levels of psychological distress as compared to Israeli-born Jews (Mirsky, Kohn, Levav, Grinshpoon & Ponizovsky, 2008). A review of Israeli community studies similarly demonstrated higher psychological distress and psychiatric morbidity among FSU immigrants compared to the native born population (Mirsky, 2009). High levels of somatization symptoms have also been demonstrated among Jewish immigrants from the FSU to Israel (Ritsner, Ponizovsky, Kurs & Modai, 2000). In the US, recently settled women from the FSU have been found to report higher depression scores compared to US norms (Miller & Chandler, 2002). A comparison of immigrants from the FSU to the US and Israel found that living in the US predicted higher depression scores than living in Israel (Miller & Gross, 2004). Some Swedish studies have shown that immigrants from the FSU have similar odds for reporting psychiatric illness and psychosomatic complaints as compared to the Swedish-born reference group (Blomstedt, Johansson, Sundquist, 2007), while others have demonstrated that being born in Eastern Europe or the FSU is an independent risk factor for reporting poor health (Sungurova et al. 2006).

Evidence on the mental health of Somali immigrants is incoherent and demonstrates both better and poorer mental health among Somali populations as compared to other immigrant groups or the host population. A Dutch study found that persons from Somalia had significantly lower levels of posttraumatic stress disorder (PTSD) and depressive

symptoms than persons from Afghanistan and Iran (Gerritsen et al., 2006). The difference between the prevalence of PTSD symptoms between Iranian asylum seekers and Somali refugees was profound: 43% among the former and 4% among the latter. Studies on the mental health of Somali immigrants in the United Kingdom (UK) found that khat use and a history of seeking asylum in the UK increased the risk of mental disorders, while a lower risk of mental disorders was found among employed Somalis and those receiving education in the UK and in Somalia (Bhui et al., 2003; Bhui et al., 2006).

Research findings on the mental health of immigrants from Iran and Iraq are more coherent, but at the same time more dismal. A high prevalence of poor self-reported health and indicators of psychological distress were found in Kurdish men and women in Sweden (Taloyan et al., 2006; Taloyan, Johansson, Sundquist, Kocturk & Johansson, 2008). Another Swedish study examined immigrant populations from Finland, Iraq and Iran and found the prevalence of anxiety or depression to be very high among Iraqi-born (60%) and Iranian-born (49%) immigrants, while among immigrants born in Finland the prevalence of anxiety or depressions was 12% (Tinghög, Al-Saffar, Carstensen & Nordenfelt, 2010). A Danish register-based study found that Iraqi refugee men had a significantly increased risk of having a first-time contact for mental disorder compared to native Danes (Nørredam et al., 2009). A review on the impact of migration on the health status of Iranians identified several factors that influence the mental health of Iranian immigrant including language insufficiency; unemployment; perceived discrimination; culture shock; lack of social support; lack of information about health care services; and intimate partner violence (Shishehgar, Gholizadeh, DiGiacomo & Davidson, 2015). Evidence also highlights the role of exposure to torture and other potentially traumatic events (Bradley & Tawfiq, 2006; Masmas et al., 2008; Steel et al., 2009).

Various studies have attempted to examine which factors contribute to the differences in mental health found between migrant populations and the native-born population. Swedish scholars have investigated the extent to which socioeconomic factors explain the association between immigrant status and poor mental health (Tinghög, Hemmingsson & Lundberg, 2007; Tinghög et al., 2010). The findings suggest that the association between immigrant status and mental illness is primarily an effect of a higher prevalence of social and economic disadvantage (Tinghög et al., 2007). Mental ill health among immigrants was found to be independently associated with several non-immigrant-specific factors, such as being divorced or widowed, poor social network, economic insecurity and being a woman, but also immigrant-specific factors, such as a low level of sociocultural adaptation (Tinghög et al., 2010). A Norwegian review identified several risk factors for mental illness among immigrants including poor socioeconomic conditions, acculturative stress, poor social support, multiple negative life events, perceived discrimination and traumatic pre-migration experiences (Abebe et al., 2014). Levecque and Rossem (2015) conducted a cross-national comparison of 20 European countries and concluded that the higher risk of depression found particularly among migrants born outside Europe as compared to the native-born population was due to experienced barriers to socioeconomic integration and processes of discrimination, and not attributable to ethnic minority status.

There is increasing evidence on the mental health of migrant populations in Finland. A recent register-based cohort study from Finland demonstrated that the incidence and prevalence of mental disorders among migrants and the native population generally showed a lower risk of mental disorders among the migrant population, but large risk differences were found by migrant and disorder group (Markkula, Lehti, Gissler & Suvisaari, 2017). Evidence exists from several studies that use data on older Somalis in Finland (e.g. Mölsä, Tiilikainen, Punamäki, 2017a; Mölsä, Kuittinen, Tiilikainen, Honkasalo, Punamäki, 2017b; Kuittinen, Mölsä, Punamäki, Tiilikainen, Honkasalo, 2017a) and from previous research projects (e.g. Pohjanpää et al., 2003; Tiilikainen, Ismail, Tuusa, Abdulkarim & Adam, 2013). For instance, Mölsä and colleagues (2014) demonstrated poorer health among older Somalis in Finland in comparison to Finnish counterparts, using measures of psychological distress, depressive symptoms, sleeping difficulties, self-rated health status, subjective quality of life, and functional capacity between. Some evidence from the Maamu Study also exists. For instance, separation from primary family has been shown to be associated with indicators of poor mental health among Somali and Kurdish origin populations (Rask et al., 2016). Moreover, a high overall prevalence of potentially traumatic experiences has been reported among Somali (56%) and Kurdish (77%) origin populations (Castaneda et al., 2017).

3.3 Association between mental health symptoms and mobility limitations

There is increasing recognition of the importance of improving functioning when treating mental disorders, such as depression (Kamenov et al., 2016). Mental disorders are generally known to be an important cause of long-term disability and dependency, and also contribute to mortality (Prince et al., 2007). Evidence supports that depression and anxiety are associated with functional disability (Ormel et al., 1994). A European prospective cohort study demonstrated that persons with depression and/or anxiety disorder had lower levels of physical function at baseline and over time compared to those with no diagnosis, while lower levels of physical function at baseline were associated with the onset of depression and/or anxiety (Stegenga et al., 2012). Untreated anxiety disorders and major depressive disorder are associated with significant reductions in functioning (Schonfeld et al., 1997). An association between posttraumatic stress disorder (PTSD) and impaired physical and mental functioning has also been demonstrated (Zayfert, Dums, Ferguson & Hegel, 2002).

The relationship between mental health and disability is suggested to be bidirectional, although causal ordering is often difficult to determine. Depressive symptoms may precede limitations in physical functioning or follow from deteriorating physical function, and these conditions may also progress simultaneously and share etiology (Hirvensalo et al., 2007; Ostir, Ottenbacher, Fried & Guralnik, 2007). There is also evidence of a dose-response relationship between the severity of mental illness and

disability (Ormel et al., 1994). One conceptualization of the association between depression and physical disability suggests mechanisms such as increased risk for incident physical illness, poor health behavior, and features of the depressed state, such as apathy and decreased pain threshold (Lenze et al., 2001). Furthermore, physical disability may lead to depression through mechanisms such as social activity restriction and loss of perceived control. Other underlying factors, e.g. medical illness, may also lead to both depression and physical disability. The mutually reinforcing relationship between depression and poor physical function may ultimately cause deteriorating health (Ostir et al., 2007).

There is evidence from the working-age Finnish population that common mental disorders affect functioning and work ability, with even mild common mental disorders including a risk of deteriorating work ability and somatic causes (Lahelma, Pietiläinen, Rahkonen & Lalluka, 2015). In a nationally representative population survey sample from Finland, self-reported mobility limitations were highly prevalent in persons with schizophrenia and other non-affective psychosis (Viertiö et al., 2009). Little research has been done on cross-national differences in functional impairment. The cross-national study Kamenov and colleagues (2016) found that mobility had an impact on quality of life in depression, but cross-cultural differences were also found in the importance of mobility as a functioning domain. Evidence on the association between mental health symptoms and physical functioning in foreign-born populations is limited. Particularly little research is available on foreign-born migrants in Europe. Siddiqui and colleagues (2014) demonstrated that physical inactivity is strongly associated with mental health symptoms among Iraqi immigrants to Sweden. Jørgensen and colleagues (2010) searched for studies on the functioning of traumatized refugees and found none. Similarly, Fazel and colleagues (2005) report that studies on PTSD in refugees rarely examine the functional impairment or treatment needs associated with the disorder.

3.4 Discrimination and its association with health

A number of studies have documented the pervasiveness of discrimination in the Finnish society. The myth of a homogenous population in Finland has been built over decades (Tervonen, 2014), and consequently the Finnish society is often described as having little experience of ethnic or cultural minorities combined with a high level of a cohesive national identity (Liebkind, Larja & Brylka, 2016). The surveys on the attitudes of Finns towards immigrants reveal that populations from Russia, Somalia, Iraq and Iran bare a significant burden of prejudice, as related groups are positioned at the lowest end of the consensual hierarchy (Jaakkola, 2005; Jaakkola, 2009). Also the preliminary findings of the Maamu Study suggest that experiences of discrimination are prevalent among Russian, Somali and Kurdish origin populations (Castaneda et al., 2012). Discrimination occurred most frequently in public places, and the proportion of those reporting continuous discrimination (occurring at least weekly) ranged between 7% among Russian and Somali

origin participants and 10% among Kurdish origin participants. A study on Somalis in Helsinki reported that not feeling welcomed or accepted as full members of the Finnish society was a major obstacle to integration (Tiilikainen et al., 2013). A study comparing seven immigrant groups in Finland found that immigrants of Arab, Somali and Turkish origin experienced more discrimination than immigrants of Vietnamese, Estonian, Russian, or Ingrian/Finnish origin (Liebkind & Jasinskaja-Lahti, 2000). An experimental study confirmed recruitment discrimination against job applicants with Russian-sounding names (Liebkind et al., 2016). Among Ingrian Finns, a population of Finnish descent, experiences of discrimination are shown to increase with longer time in Finland (Mähönen & Yijälä, 2016).

Some comparative cross-country evidence also exists. The European Union Minorities and Discrimination Survey provided the first primary survey data from selected ethnic minority and immigrant persons living in the EU; the highest incidence rates for assault or threat were found among Somali respondents in Finland (European Union Agency for Fundamental Rights, 2009). There are also similarities between the findings from Finland and results from other Nordic countries. For example a Swedish study found that over 80% of Kurdish men reported experiencing discrimination (Taloyan et al., 2006). Other Swedish studies have shown that discrimination is particularly common among men who have migrated from non-European countries (Sundquist, Bayard-Burfield, Johansson & Johansson, 2000; Wiking, Johansson & Sundquist, 2004).

A wide body of evidence demonstrates the negative associations between discrimination and health (Gee, 2002; Karlsen, Nazroo, McKenzie, Bhui & Weich, 2005; Krieger, 1999; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). Perceived discrimination is shown to be associated with poor mental health consistently across cross-sectional and longitudinal data (Lee & Turney, 2012), while the threshold for finding an association between discrimination and physical health is higher (Gee, 2002). Stress theory is often used to conceptualize the effects of discrimination on health. Guided by this theory, discrimination is seen as a social stressor with broad implications for both physical and mental health (Karlsen et al., 2005; Noh & Kaspar, 2003; Pascoe & Smart Richman, 2009; Wiking et al., 2004). Other theories, such as the ecosocial theory, propose multiple pathways by which discrimination can harm health including e.g. economic and social deprivation, social trauma, health-harming responses to discrimination, and inadequate medical care (Krieger, 2012b).

Research on discrimination and health has been conducted in diverse settings. Much of this research has focused on racial or ethnic groups that are not migrants (e.g. African Americans). An increasing number of studies have examined this association specifically among migrant populations. Among recently migrated population groups in the UK, an association between everyday discrimination and common mental disorders has been demonstrated (Hatch et al., 2016). Some studies have also examined the association between discrimination and health among Russian, Somali and Kurdish origin populations. A Swedish study including Iranian immigrants found that discrimination was among the factors that seemed to mediate the strong association between ethnicity and poor self-reported health (Wiking et al., 2004). Another Swedish study on Arabic and

Sorani speaking refugees reported discrimination as one of four key dimensions that comprise resettlement stress (Lindencrona, Ekblad & Hauff, 2008). A study among young Somalis in the US demonstrated associations between traumatic experiences, acculturative stressors and perceived discrimination and poor mental health (Ellis, MacDonald, Lincoln & Cabral, 2008).

The association between discrimination and health has been examined in some Finnish studies as well. Liebkind & Jasinskaja-Lahti (2000) demonstrated that experiences of discrimination had a significant impact on psychological stress among various immigrant groups in Finland. Their findings showed, however, that among Somalis experiences of discrimination were the most common, while stress symptoms were the least common. Contrary to this, Mölsä and colleagues (2017) demonstrated that discrimination increased PTSD symptoms among older Somalis in Finland. Some research has also been conducted using data from the Maamu Study. Perceived discrimination was found to be associated with feelings of unsafety and low trust towards various institutions in society among Russian, Somali and Kurdish origin populations, and among Russian and Kurdish origin populations, discrimination was also associated with mental health symptoms and poor quality of life (Castaneda et al., 2015). Contrary to expectations, Idehen and colleagues (2017) found that experiences of discrimination among Russian origin women increased the odds for participating in cervical cancer screening, while no associations were found among Somali and Kurdish origin women. Among Russian origin persons, perceived discrimination in health services in Finland increased the odds for seeking health care in Russia (Kemppainen, Kemppainen, Skogberg, Kuusio & Koponen, 2017).

3.5 Identified gaps in research

The review of literature identified several gaps in research. Firstly, most studies on differences in physical functioning between population groups have been conducted in the US (e.g. Carrasquillo, Lantigua & Shea, 2000; Spencer, Albert, Bear-Lehman & Burkhardt, 2008). Much less evidence was available on recently migrated populations in Europe. A review on mental disorders among refugees notes that functional impairments have rarely been addressed or recorded in surveys on post-traumatic stress disorder among refugees (Fazel et al., 2005). Previous research also states the need for more research on the mental health of migrants, particularly for population-based studies with clearly defined population groups (Rechel et al., 2012). Some of the previous studies on experiences of discrimination among migrants have been limited by low response rates. Overall, few epidemiologic studies have examined how different types of perceived discrimination are related to health (Noh, Kaspar & Wickrama, 2007). Further investigations on the health of Russian, Somali and Kurdish origin populations have specifically been called for in Finland (Castaneda et al., 2012).

4 Aims

This study aims to improve knowledge on populations of Russian, Somali and Kurdish origin in Finland. The study specifically examines mobility limitations, mental health symptoms and perceived discrimination. Each of the sub-studies relies on survey data, and sub-studies I–III include a comparison group from the general population in Finland. The specific aims are to:

1. Assess the prevalence of mobility limitations in Russian, Somali and Kurdish origin populations compared to the general population in Finland (sub-study I).

2. Assess the prevalence of mental health symptoms in Russian, Somali and Kurdish origin populations compared to the general population (sub-study II).

3. Examine which factors are associated with mobility limitation and mental health symptoms in the studied populations (sub-studies I–II) and determine the association between mental health symptoms and mobility limitation (sub-study III).

4. Assess the prevalence of perceived discrimination in Russian, Somali and Kurdish origin populations and examine the association between perceived discrimination and self-reported health, limiting long-term illness or disability and mental health symptoms (sub-study IV).

5 Materials and methods

5.1 The context of the study

This study examines Russian, Somali and Kurdish origin populations in Finland. These populations comprise more than one fourth of the foreign-born population in Finland (Statistics Finland, 2017). The Russian origin population is the largest migrant group in Finland, while the Somali origin population is the third largest and Kurdish-speaking persons the sixth largest. The studied population groups were selected to the Maamu Study for the following reasons: the Russian origin population for being the largest foreign-born group in Finland, and Somali and Kurdish origin populations for being significant, and potentially vulnerable, groups due to the background of involuntary migration (Castaneda et al., 2012). The word "origin" (e.g. Russian origin) has been used when referring to the studied populations to acknowledge the lengthy time many of the participants have lived in Finland, a mean of 11–12 years in all three groups.

Migration from Russia, Somalia, Iraq and Iran is significant also from an international perspective. According to the population statistics of the UN, migrants from the Russian Federation comprise more than 10 million persons in 2015 (United Nations, 2015). The Russian-speaking population living outside of Russia has been estimated to total 25–30 million (Ryazantsev, 2013). There are significant Russian origin populations in countries such as Germany, the United States, Canada, and Israel (United Nations, 2015). An estimated 2 million persons had migrated from Somalia in 2015 (United Nations, 2015). More than half of these migrants live in countries in close proximity to Somalia e.g. in Kenya, Ethiopia and Yemen. There are also significant Somali origin populations in countries such as the United States and the United Kingdom. Somalis have also been among the dominant non-Nordic migrant groups moving to Scandinavia in the 2000s (Bevelander et al., 2013). There are uncertain estimates on the number of Kurds living outside the Kurdistan area (Ammann, 2005). Population estimates are especially challenged by the lack of an official Kurdish state or official census, and since self-identification for Kurds is particularly wide. In 2005, an estimated one million Kurds lived in Europe, with more than 600 000 residing in Germany (Ammann, 2005). Iraqi and Iranian migrants have been dominant non-Nordic groups migrating to Scandinavia (Bevelander et al., 2013). There are significant populations from Iraq and Iran living outside Europe, for instance in the United States and Canada (United Nations, 2015).

5.1.1 The context of origin in Russia, Somalia, Iraq and Iran

Russia, officially called the Russian Federation, is a Eurasian country that stretches from the border of Finland in the west to the Pacific Ocean in the east. In terms of surface area,

Russia is the largest country in the world. In 2016, the estimated population of Russia totaled more than 143 million (United Nations Statistics Division, 2016). The ethnicity of nearly 80 percent of the population is Russian, while the largest ethnic minority groups are Tatars, Ukrainians, Bashkirs, Chuvashs, and Chechens (Aroian, Khatutsky & Dashevskaya, 2013). Russia belonged to the Soviet Union between the years 1922 and 1991, and therefore the majority of the population has been born in the Former Soviet Union (FSU). The FSU is a significant part of Russian migration history: during the period of 1970–1986, the FSU enforced emigration policies, which made moving from the country considerably difficult and resulted in highly selective migration (Mehta & Elo, 2012). Reflecting the collapse of the FSU, Russia is characterized today as a country in economic transition (United Nations Development Policy and Analysis Division, 2012). The proportion of urban population is 74 percent (United Nations Statistics Division, 2016). Vast regional differences in self-rated health have been demonstrated in Russia (Lyytikäinen & Kemppainen, 2016). Overall, mortality for Russian men significantly exceeds that in countries with similar levels of income per capita (Atun, 2005): the life expectancy at birth of Russian men was 64 years and women 76 years in 2015 (United Nations Statistics Division, 2016). Ischemic heart disease, cerebrovascular disease, and cardiomyopathy are among the leading causes of death in Russia, while the leading causes of years lived with disability (YLDs) are low back and neck pain, depressive disorders, and sense organ diseases (Institute for Health Metrics and Evaluation, 2016). Risk factors that account for the greatest burden of disease are dietary risks, high blood pressure, and alcohol and drug use.

Somalia is an Eastern African country, neighbored by Ethiopia, Kenya and Djibouti. The estimated population of Somalia is 11 million (United Nations Statistics Division, 2016). The majority of the population is ethnic Somalis, but divisions between clan-families exist (Metz, 1993). Somalia holds a history of political turmoil, civil war and famine, and the country is listed among the least developed countries of the world (United Nations Committee for Development Policy, 2016). Only 20 percent of the population in Somalia is urban (United Nations Statistics Division, 2016). The life expectancy at birth of Somali men is 53 years and women 57 years (United Nations Statistics Division, 2016). Leading causes of death in Somalia are communicable diseases, maternal, perinatal and nutritional conditions, demonstrating the epidemiological phase of the country. The top leading causes of death are diarrheal diseases, lower respiratory infection, and tuberculosis (Institute for Health Metrics and Evaluation, 2016). Leading causes of YLDs are iron-deficiency anemia, depressive disorders, and sense organ diseases. Child and maternal malnutrition, unsafe water and sanitation, and air pollution are the most important risk factors of death and disability.

Defining the region of Kurdistan or those identified as Kurds is a controversial geopolitical issue. The Kurdistan area is seen to comprise eastern Turkey, northern Iraq, and parts of western Iran and Syria (Ammann, 2005). Kurdish identity reflects the cross-border nature of Kurdistan, and it is often constructed on features such as the Kurdish language, shared ancestry or origin, the common land of Kurdistan, and mutual experiences of 'otherness' in various nation states (Toivanen, 2014). Still there is

heterogeneity among the Kurdish population in terms of language, religion, political affiliation, residence in urban or rural settings, and place of living. This study includes only Kurds born in Iraq or Iran. The contexts of these two countries are presented next, although it is important to note that national statistics may not be descriptive of the Kurdish minority population.

Iraq is located in Western Asia, also referred to as the Middle East. The country shares its longest borderlines with Iran, Saudi Arabia, Syria and Turkey. Iraq has a population of 38 million, of which 80 percent are Arabs and 15–20 percent is estimated to be of Kurdish ethnicity. This makes Kurds the largest ethnic minority group in Iraq (Central Intelligence Agency, 2013). The proportion of urban population in Iraq is 70 percent (United Nations Statistics Division, 2016). Life expectancy at birth for Iraqi men is 67 years and 71 years for women. The leading causes of death in Iraq are ischemic heart disease, war and legal intervention, and cerebrovascular disease (Institute for Health Metrics and Evaluation, 2016). War injuries are the most important cause of premature death, while leading causes of YLDs are low back and neck pain, diabetes, depressive disorders, and war. The main risk factors of death and disability are dietary risks, high systolic blood pressure, and high body-mass index.

Iran (officially the Islamic Republic of Iran) has its longest borderlines with Turkey and Iraq in the west and Turkmenistan, Afghanistan and Pakistan in the east. Iran has an ethnically diverse population of 80 million people: the largest ethnic groups are Persians (60%), Azeri (16%) and Kurds (10%) (Central Intelligence Agency, 2013). Similar to Iraq, the proportion of urban population is above 70 percent. Life expectancy at birth of Iranian men is 74 years and 76 years for women (United Nations Statistics Division, 2016). The leading causes of death are ischemic heart disease, cerebrovascular disease, and road injuries, while leading causes of YLDs are low back and neck pain, diabetes, depressive disorders, and sense organ diseases (Institute for Health Metrics and Evaluation, 2016). As in Iraq, the main risk factors of death and disability are dietary risks, high systolic blood pressure, and high body-mass index.

5.1.2 The studied populations in the context of Finland

Finland is a Nordic welfare state with a long history of emigration, but a relatively short history of net immigration (Heikkilä & Pikkarainen, 2008). Bordered by Sweden to the west and Russia to the east, Finland is characterized by an in-between position in relation to the East-West divide (Keskinen, 2014). Finland has experienced a period of increasing immigration starting in the 1990s. As of 1995 the country has been a member of the EU. Finnish migration policy is based on Government objectives, the common migration and asylum policy of the EU and various international agreements (Ministry of the Interior, 2017a). The Act on the Integration of Immigrants and Reception of Asylum Seekers (439/1999) is the primary outline of immigrant integration (Ministry of the Interior, 2009). These migration policies play a role in migrant selection, but also in setting the frame and tone of reception. The cross-country comparison of Malmusi (2015) grouped 14 European

countries according to a typology of integration policies: Finland was included in the group scoring the highest points and characterized as 'multicultural'. At the same time, the racialized borders of 'Finnishness' are evident in the centrality of whiteness and westernness as fundamental for national identity (Rastas, 2005; Rastas, 2007; Keskinen, 2014), and the 'circle of Finnishness' is characterized to be exclusive and non-accommodating (Toivanen, 2014).

The size of the foreign-born population in Finland has become ten-fold over the past 20 years (Myrskylä & Pyykkönen, 2014). In 2016, slightly over 300 000 persons living in Finland were born abroad and considered to be of foreign background (Statistics Finland, 2017). This accounted for around 6 percent of the overall population in Finland. Despite the increase, migration to Finland is modest in comparison to many other member countries of the EU (OECD, 2016). The greatest proportion of migration to Finland is from other EU countries. In 2015, the registration of EU citizens comprised a third of all new residence permits (European Migration Network, 2015). The second largest group (24%) consisted of third country nationals arriving on the basis of family ties. Approximately one sixth of the permits were based on employment or studying, each. Only 8 percent were granted on the basis of international protection or to resettled refugees (European Migration Network, 2015). Among these are the few quota refugees (750 persons in the year 2016) admitted to Finland through the UNHCR resettlement (Ministry of the Interior, 2017b).

The size of the Russian origin population in Finland is approximately 68 000 as categorized by birthplace in Russia or the FSU or 72 000 as categorized by Russian mother tongue using statistics from 2015 (Statistics Finland, 2017). Migrants from Russia have generally moved to Finland voluntarily, as much of this migration is explained by labor migration and personal relationships. A clear gap in living standards exists across the Finnish-Russian border, explaining some of the migration from Russia to Finland. A specific type of migration from Russia to Finland is the return migration of the Ingrians. Ingrians are one demonstration of the heterogeneity of the Russian-born population in Finland, as Ingrians are a population of Finnish descent that has been living on the Russian side of the Finnish-Russian border. The remigration of the Ingrian Finns began in 1990 and finished only recently in 2016, resulting in the remigration of more than 30 000 Ingrians (Finnish Immigration Service, 2016). Not all migration from Russia to Finland is voluntary and reflects e.g. the human rights situation in the Caucasus and the general situation in Russia for sexual minorities. Approximately 200 persons of Russian nationality applied for asylum yearly in 2015 and 2016 (Finnish Immigration Service, 2017a; Finnish Immigration Service, 2017b).

The size of the Somali origin population in Finland is approximately 11 000 as categorized by birthplace in Somalia and 18 000 as categorized by Somali as mother tongue (Statistics Finland, 2017). The first Somalis arrived to Finland in the early 1990s, following civil war, drought and the rapidly deteriorated overall situation in Somalia (Metz, 1993). Since then the Somali origin population has grown in size also through family reunifications. Also today, Somalis comprise one of the largest groups seeking asylum in Finland. Almost 2 000 Somalis applied for asylum in Finland in the peak-year

of 2015 (Finnish Immigration Service, 2017a), compared to 400 applications in 2016 (Finnish Immigration Service, 2017b).

The size of the Kurdish-speaking population in Finland is approximately 11 000 persons (Statistics Finland, 2017). Migrants born in Iraq or Iran (including, but not limited to Kurdish-speakers) totaled 17 000 persons. Most Kurdish origin persons have moved to Finland as refugees, asylum seekers or based on family reunification. Recently there was a sharp increase in the number of Iraqi asylum seekers to Finland, with more than 20 000 Iraqis seeking asylum in 2015 as compared to 800 persons in 2014 (European Migration Network, 2015). Approximately 1200 Iraqis and 150 Iranians applied for asylum from Finland in 2016 (Finnish Immigration Service, 2017b).

5.2 Migrant Health and Wellbeing Study and Health 2011 Survey

Data from the Migrant Health and Wellbeing Study (Maamu) in Finland were used in all four sub-studies. The studied populations were considered to consist of three different population groups: populations of Russian, Somali and Kurdish origin. The inclusion criteria for persons categorized to be of Russian origin were birthplace in Russia or the FSU and mother tongue Russian or Finnish, for persons categorized to be of Somali origin birthplace in Somalia, and for persons categorized to be of Kurdish origin birthplace in Iraq or Iran and mother tongue Kurdish. The sample was randomly selected from the National Population Registry and included 1 000 persons per studied group (3 000 persons in total). The study population was restricted to individuals who had resided in Finland for at least one year. Inclusion criteria also included age between 18 to 64 years and residence in selected Finnish cities (Helsinki, Espoo, Vantaa, Turku, Tampere, or Vaasa). The sample did not include persons still seeking for asylum and living in reception centers, since municipal residence was a requirement to be included in the study. At the time of the data collection, the population of Somali origin in Vaasa was small in number and therefore the Somali sample was drawn only from five cities.

Data were collected in the years 2010–2012 by trained personnel who spoke both the language of the respective target group and Finnish (Castaneda et al., 2012). The study protocol included a face-to-face interview on health and wellbeing and a health examination. A supplementary short interview or questionnaire was collected from those refusing to participate in the long interview. Of the invitees, 70% of Russian (n=702), 51% of Somali (n=512), and 63% of Kurdish (n=632) origin persons participated in at least one part of the survey. The participation rates to the health examination were 47% in Russian (n=468), 38% in Somali (n=378), and 52% in Kurdish origin persons (n=520). More detailed participation rates to the different modes of data collection have been reported previously (Castaneda et al., 2012).

Sub-studies I–III included a comparison group from the general population in Finland. This comparison group was selected from the national population-based sample of the Health 2011 Survey (Koskinen, Lundqvist & Ristiluoma, 2012), including all

sampled persons within the same age range and living in the same municipalities as in the Maamu Study (n=2275). Of this sample, 70% participated in at least one part of the study (n=1582). Data in the Health 2011 Survey were collected with similar data collection methods and measures as in the Maamu Study.

The total sample of this study comprises 3 201 persons, consisting of the three foreign-born populations (Russian origin n=692; Somali origin n=489; Kurdish origin n=614) and the reference group from the general population (n=1406).The sample in sub-study I was restricted to persons aged 29–64 years to allow comparison with the general population, as questions on mobility were not asked from the youngest participants in the Health 2011 Survey. The Finnish comparison group included all persons aged 29–64 years who participated in the health examination (n=913). Sub-study II used data from the health examination for the whole sample aged 18–64 years. In sub-study II, the Finnish comparison group included all persons aged 18–64 years who participated in the health examination (n=956). Sub-study III used data for the whole sample (aged 18–64 years) for the foreign-born groups, but also used data restricted to participants aged 30–64 years to allow comparison with the general population. In sub-study III, the Finnish comparison group included all sampled persons within the age range 30–64 years who participated in the survey and lived in the same municipalities as selected for the Maamu Study (n=892). Sub-study IV used data only from the Maamu Study, but from all modes of data collection (interview, health examination and short interview).

5.3 Measures

5.3.1 Mobility limitation

Questions on mobility were asked in the health examination and the short interview/questionnaire. The items included: running a short distance (about 100 meters), climbing up several flights of stairs without resting, walking about 500 meters, and walking 100 meters while carrying a 5 kilogram bag. The participants were asked "Can you manage" the respective activity, and the four response categories were: without difficulties, with minor difficulties, with major difficulties, or not at all. These questions, originally from the recommendation of OECD (McWhinnie, 1981), have been used in previous population surveys (A. Aromaa et al., 1989; A. Aromaa & Koskinen, 2004). Participants reporting any difficulties in a selected item were considered to have difficulties in that activity. Mobility limitation was categorized as having any difficulties in walking 500 meters or stair climbing, as in various previous studies (e.g. Stenholm et al., 2010).

Substudy I also included physical performance with chair stand test (Csuka & McCarty, 1985). The ability to rise from a chair was tested in the health examination by asking participants to rise from a standard-height chair without using their arms. Those able to do this were asked to rise ten times as fast as possible, measuring the time needed

for the performance. Participants were defined to have poor performance if they were unable to rise 10 times from the chair or their test times belonged the lowest tertile (men cut-off > 22.2 seconds and women > 24.7 seconds).

5.3.2 Mental health

Mental health symptoms were examined using the Hopkins Symptom Checklist-25 (HSCL-25) (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974). The HSCL-25 was included in the health examination to measure clinically significant symptoms of depression and anxiety in a self-administered questionnaire, with some participants interviewed due to difficulties in reading. HSCL-25 is a subscale of the Symptom Checklist-90 (SCL-90) questionnaire (Derogatis, Lipman & Covi, 1973). The HSCL-25 has been shown to have good reliability and validity in clinical refugee samples (Hollifield et al., 2002), and it has been proposed as a suitable measure for comparing groups of different cultural origin residing in westernized countries (Tinghög & Carstensen, 2010). The HSCL-25 includes 15 items on the occurrence of depressive symptoms and 10 items on anxiety symptoms during the past seven days. The scale ranges from 1 ("not at all") to 4 ("extremely"). Responses to the HSCL-25 were summed and divided by the number of answered items to generate a symptoms mean score ranging from 1.0 to 4.0. Participants were included in the analysis if they had responded to at least 20 items. The cut-off point of 1.75 was used as an indication of clinically significant symptoms (Nettelbladt, Hansson, Stefansson, Borgquist & Nordstrom, 1993). Sub-studies II and III also examined the depression (HSCL-15) and anxiety (HSCL-10) subscales separately. Participants were included in the analysis if they had responded to at least 11 items of the HSCL-15, or 8 items of the HSCL-10. Symptoms of somatization were assessed in sub-studies II and III using the somatization subscale of the SCL-90 (Derogatis et al., 1973). The subscale includes 12 items on the occurrence of somatic symptoms during the past seven days, and the response categories are identical to those of the HSCL-25. Participants who responded being at least a little bothered by eight or more symptoms were considered to have symptoms of somatization (Jyväsjärvi et al., 2001). To be included in analysis, participants had to have responded to at least eight items. Analysis including the general population could not be conducted for somatization as data were not available for this subscale.

5.3.3 Self-rated health and limiting long-term illness or disability

Self-rated health (SRH) and limiting long-term illness or disability (LLTI) were included in sub-study IV as measures of health. The question on self-rated health (SRH) was included in the interview and the short interview/questionnaire, and it is a widely used measure of health in population-based research (Idler & Benyamini, 1997). The response options for the question were: good, fairly good, average, fairly poor, or poor. Those

reporting less than fairly good health were coded as having poor SRH. Limiting long-term illness or disability was assessed with the question: "Do you have any permanent or chronic illness or any defect, trouble or injury, which reduces your working capacity or functional ability?" (yes/no). This question was similarly included in the interview and the short interview/questionnaire. Related questions on long-lasting conditions that substantially limit basic activities have previously been used in studies on migration and health (e.g. Elo et al., 2011; Mehta & Elo, 2012).

5.3.4 Discrimination

Perceived discrimination was examined in the interview and the short interview/questionnaire using four items from The Everyday Discrimination Scale (Williams, Yu, Jackson & Anderson, 1997). The question was: "Have you experienced the following things in your everyday life in Finland", and the items included: "You are not treated as politely as other people", "You are not treated as respectfully as other people", "You have been called names or insulted verbally" and "You have been threatened or harassed". Each question was answered by "yes" or "no". Similar to a previous study on overt and subtle discrimination (Noh et al., 2007), the term subtle discrimination was used to refer to those reporting being treated less politely than others and/or treated less respectfully than others, and overt discrimination to refer to those reporting being called names or insulted and/or threatened or harassed. Based on these two items, a variable with three categories was created: a) those reporting no experiences of discrimination, b) those reporting only subtle discrimination, c) those reporting overt discrimination or both subtle and overt discrimination.

5.3.5 Other explanatory variables

The explanatory variables included in the sub-studies are presented in Table 1. The sociodemographic variables used in sub-study I were age, marital status, education, employment status, and economic situation. Age was included as a continuous variable. Marital status was dichotomized into those married or cohabiting and others. Education level was dichotomized into high school or higher (or having completed part of high school) and having less than high school education. Employment status was divided into three categories: employed, unemployed, and economically inactive. Economic situation was assessed using an item from the WHOQOL-BREF asking if the participant has enough money to meet their needs (World Health Organization, 1996). The response categories were dichotomized into "not at all or a little" and "moderately, mostly or completely". Health-related variables included body mass index (BMI), selected chronic conditions and permanent injury. A dichotomized variable for BMI was formed based on measured height and weight (non-obese, <30 kg/m^2 and obese, ≥30 kg/m^2). Chronic conditions were self-reports of conditions ever diagnosed by a physician. One variable

was formed comprising coronary heart disease, high blood pressure, diabetes, asthma, chronic bronchitis, knee osteoarthritis or hip osteoarthritis. Also self-reports of permanent injuries were included as an explanatory variable. Migration-related variables consisted of self-reported time lived in Finland (less than 6 years, 6 to 14 years and more than 14 years) and language proficiency in Finnish and Swedish (dichotomized into not at all or poorly and moderately or well).

The explanatory variables in sub-study II included age, education, marital status, employment status, economic situation, age at migrating to Finland, time lived in Finland, language proficiency in Finnish/Swedish, illiteracy and refugee background. Sub-study III included age, education, vocational training, employment, economic situation, time lived in Finland, age of moving to Finland, language proficiency in Finnish and Swedish, refugee status, chronic diseases, obesity, injuries, smoking, regular alcohol consumption, and loneliness. The following sociodemographic characteristics were included in sub-study IV: age (continuous), gender, education, time lived in Finland (continuous), and region in Finland. The variable for education was a dichotomous variable on the completion of high school or part of high school in any country. The regions of residence were divided into the capital city area (Helsinki, Espoo and Vantaa) and other cities (Turku, Tampere and Vaasa).

5.4 Statistical Analyses

All of the analyses were conducted using SAS 9.3 and SUDAAN 11.0.0/11.0.1 software, which takes into account the sampling design. Inverse probability weights (Robins, Rotnitzky & Zhao, 1994) calculated with age group, gender, population group, municipality and marital status were used to reduce bias due to non-response and produce representative estimates for means and percentages. The population sizes were relatively small, and a significant proportion of the total population was included in the sample. Thus finite population correction (Lehtonen & Pahkinen, 2004) was applied in all analyses. The prevalence rates of mobility limitations, mental health symptoms and perceived discrimination were calculated for each population group using predictive margins (Graubard & Korn, 1999). Differences in prevalence rates were calculated using the Satterthwaite adjusted F-statistic. All of the sub-studies used logistic regression, which estimated the strength of the associations with odds ratios (OR) and 95% confidence intervals (CI). The sub-studies included the following models:

In sub-study I, three models were constructed to examine the association between population group and mobility limitation and the role of sociodemographic and health-related factors in that association: Model 1 adjusted for age and gender; Model 2 added marital status, education, employment status, and economic situation to Model 1; Model 3 included the same variables as Model 2, with the addition of body mass index, selected chronic conditions, and permanent injuries. The second degree interactions (determinant × migrant group × gender) were examined and found to be statistically non-significant (a *p*-

value of < 0.05 was considered statistically significant). The first degree interactions (determinant × gender) were all statistically non-significant, with the exception of marital status and body mass index. Further investigations on the magnitude of these associations suggested that stratification by gender was not necessary, and therefore the main results were presented for men and women together. Descriptive statistics and the prevalence rates of mobility limitation were, however, presented by gender to provide more comprehensive information on the level of mobility limitation in the studied populations. The first degree interactions (determinant × migrant group) were all statistically non-significant, except for the variables education and economic situation. The associations between these two variables and mobility limitation were examined by population group.

In sub-study II, the associations between population group and depressive and anxiety symptoms (as measured by HSCL-25, HSCL-15 and HSCL-10) were calculated using logistic regression. Two models were constructed: Model 1 adjusted only for age, while Model 2 adjusted for age, education, marital status, and employment status. Logistic regression was also used to examine which sociodemographic factors are associated with mental health symptoms. These models included age and each background variable separately in the model. All analyses were stratified by gender as the interactions between gender and population group were statistically significant.

In sub-study III, the associations between mental health symptoms and mobility limitation were calculated using logistic regression. Four models were constructed, including an increasing number of adjusted variables. Model 1 adjusted only for age. Model 2 adjusted for age, education and economic situation. Model 3 added language proficiency to the variables included in Model 2. Model 4 further added BMI and chronic conditions. Age and education were adjusted for in the analysis including the Finnish comparison group. The interaction between gender and population group was tested, and as significant interactions were found, all analyses were stratified by gender. Russian and Somali origin men had to be excluded from some of the analyses due to too few observations.

In sub-study IV, the associations between perceived discrimination and each of the selected indicators of health were calculated using logistic regression. Model 1 adjusted only for age and gender. Model 2 adjusted additionally for education, reason for migration, time lived in Finland and region of residence in Finland. Gender-stratified analyses were included as Supplementary tables of sub-study IV. The association between perceived discrimination and mental health could not be examined among persons of Somali origin due to too few observations of mental health symptoms.

5.5 Ethical approval

The Maamu Study and the Health 2011 Survey were approved by the Coordinating Ethical Committee of the Helsinki and Uusimaa Hospital Region, Finland. Written informed consent was obtained from each participant.

Table 1.   Data sets and study variables in the sub-studies

	Sub-study I	Sub-study II	Sub-study III	Sub-study IV
Study population	n=1 880 Russian orig. n=362 Somali orig. n=239 Kurdish orig. n=366 Ref. group n=913	n=2 316 Russian orig. n=468 Somali orig. n=377 Kurdish orig. n=515 Ref. group n=956	n=1 357 Russian orig. n=467 Somali orig. n=378 Kurdish orig. n=512 n=1 813 Russian orig. n=344 Somali orig n=229 Kurdish orig. n=348 Ref. group n=892	n=1 795 Russian orig. n=692 Somali orig. n=489 Kurdish orig. n=614
Ages	29–64	18–64	18–64; 30–64	18–64
Dependent variable(s)	Mobility limitation	Mental health symptoms	Mobility limitation	Self-rated health Limiting long-term illness or disability Mental health symptoms
Independent variables	Gender (stratified); Age (continuous); Marital status; Education; Employment status; Economic situation; BMI, selected chronic conditions; Permanent injury; Time lived in Finland; Language proficiency in Finnish/Swedish	Gender (stratified); Age (18–39 yrs; 40–64 yrs); Education; Marital status; Employment status; Economic situation; Age at migrating to Finland; Time lived in Finland; Language proficiency in Finnish/Swedish; Illiteracy; Refugee background	Mental health symptoms Gender (stratified); Age (continuous); Education; Economic situation; Time lived in Finland; Age of moving to Finland; Language proficiency in Finnish/Swedish; Obesity; Selected chronic conditions	Perceived discrimination Age (continuous); Gender, Education (high school); Time lived in Finland (continuous); region in Finland (capital city area/other cities)

6 Results

6.1 Characteristics of the study population

The characteristics of the study population are presented in Table 2. Statistically significant differences were found in all of the presented key characteristics. Persons of Somali and Kurdish origin were younger than those of Russian origin and the reference group from the general population. Only Kurdish origin participants were more often men than women. Having completed or attended high school was most common among persons of Russian origin and least common among persons of Somali origin. The share of married persons ranged between 60% among persons of Russian origin and 67% among persons of Kurdish origin. There were significant differences between the studied groups in employment status: only 4% of participants in the general population were unemployed, compared to 21–26% of the foreign-born participants, while being employed was less common in the foreign-born groups compared to the general population. Perceived financial difficulties were prevalent in all of the foreign-born groups, while comparative data for the general population were not available.

The majority of the study participants in all three foreign-born groups had migrated to Finland as adults. The mean time in Finland ranged between 11–12 years. The primary reason for migration among Somali and Kurdish origin participants was a refugee background. The reason for migration among Russian origin participants was more mixed, with one third of the participants being of Ingrian Finnish background. Poor language proficiency in Finnish and Swedish was most common among persons of Somali origin and least common among persons of Russian origin. Some of the participants of Somali and Kurdish origin, mainly women, were illiterate.

Table 2.   Characteristics of the Study Populations (n=3 201)

Characteristics	Russian origin (n=692) %[1] (n)[2]	Somali origin (n=489) %[1] (n)[2]	Kurdish origin (n=614) %[1] (n)[2]	Ref. group (n=1 406) %[1] (n)[2]	p-value
Age, yrs					**<0.001**
18–39	52.1 (351)	66.0 (317)	64.7 (385)	52.4 (594)	
40–64	47.9 (341)	34.0 (172)	35.3 (229)	47.6 (812)	
Women	63.0 (439)	55.4 (271)	44.5 (288)	51.2 (800)	**<0.001**
High school[3]	77.2 (518)	27.2 (109)	42.3 (254)	65.6 (931)	**<0.001**
Married	59.6 (445)	67.3 (320)	66.8 (423)	61.3 (922)	**0.011**
Employment					**<0.001**
Employed	54.3 (384)	26.1 (108)	40.2 (238)	66.9 (871)	
Unemployed	20.9 (139)	22.0 (92)	25.8 (155)	4.4 (53)	
Inactive[4]	24.8 (157)	52.0 (255)	33.9 (197)	28.7 (183)	
Financial difficulties[5]	44.1 (299)	62.1 (301)	65.4 (397)	NA	**<0.001**
≥18 yrs at migration[6]	70.2 (540)	67.0 (297)	77.3 (476)	NA	**<0.001**
Time in Finland, yrs				NA	
< 6	21.1 (138)	18.0 (123)	19.1 (123)		
6–14	42.8 (296)	41.1 (189)	52.8 (317)		
> 14	36.1 (256)	40.8 (169)	28.2 (172)		
Refugee background	1.0 (4)	73.1 (233)	75.8 (378)	NA	**<0.001**
Poor language profic.[7]	9.8 (77)	18.7 (103)	15.9 (102)	NA	**<0.001**
Illiterate	0.0 (0)	7.2 (29)	6.1 (31)	NA	**<0.001**

[1] Age-adjusted and weighted prevalence
[2] Crude n
[3] Has completed high school or part of high school in any country
[4] Economically inactive includes those reporting other employment status than employed or unemployed e.g. housewives, students, and pensioners
[5] Those finding it at least quite difficult to cover costs considering the total income of their household
[6] Adjusted using continuous variable for age
[7] Poor language proficiency in Finnish and Swedish
Ref. group=comparison group from the general population in Finland
p-value=Difference compared to the reference group, Satterthwaite adjusted F-statistic
NA=Data not available for reference group (p-value=difference between the three foreign-born groups)

6.2 Mobility limitation in the studied populations (I)

The prevalence of mobility limitation was examined in sub-study I using self-reported difficulties in walking 500 m or stair climbing. Also individual indicators of mobility and poor performance in the chair stand test were examined to provide a more detailed description of mobility in the studied populations (Table 3). Of all the asked activities, running 100 meters can be considered the most difficult individual activity, and hence the prevalence of difficulties in running was also the highest in most groups. Difficulties climbing several flights of stairs were, however, as common as difficulties in running, particularly among Kurdish and Somali origin women. Overall, the prevalence of mobility limitation ranged between 7% among Russian origin men and 57% among Kurdish origin women. Poor performance in the timed chair stand test, meaning a test time belonging to the lowest tertile by gender, was more common than self-reported mobility difficulties in all other groups except for Kurdish origin women.

Table 3.   Indicators of mobility in the studied populations[1] (%)

	Russian origin	Somali origin	Kurdish origin	Ref. group
MEN[2]	n=124	n=88	n=192	n=406
Mobility limitation[3]	6.5	14.8**	31.7***	5.4
Prevalence of difficulties				
walking 500m	4.1	3.7	21.3***	1.7
carrying 5kg for 100m	0.0	7.0	19.9***	2.8
climbing several flights of stairs	5.3	12.7**	29.1***	4.7
running 100m	12.5	14.8	33.0***	8.7
Poor performance in chair test[4]	32.2***	66.5***	60.0***	16.7
WOMEN[2]	n=238	n=151	n=174	n=507
Mobility limitation[3]	16.7	46.1***	57.0***	12.0
Prevalence of difficulties				
walking 500m	4.4	14.4***	35.4***	3.4
carrying 5kg for 100m	8.4	20.7**	48.1***	9.2
climbing several flights of stairs	15.5	45.8***	55.4***	11.7
running 100m	19.8	46.1***	54.2***	15.7
Poor performance in chair test[4]	29.6***	72.5***	54.9***	14.5

[1] Age-adjusted and weighted prevalence
[2] Crude n
[3] Self-reported difficulties in walking 500 meters or stair climbing
[4] Including chair stand test times belonging to the lowest tertile (men time > 22.2 sec and women > 24.7 sec) and those unable to rise 10 times from the chair
* p-value < 0.05; ** p-value < 0.01; *** p-value < 0.001 (difference compared to the reference group, Satterthwaite adjusted F-statistic)
Ref. group=comparison group from the general population in Finland

The prevalences of mobility difficulties in the foreign-born populations were compared to those in the general population by gender. The prevalence of mobility limitation was 5% among men in the general population and 12% among women in the general population. The prevalence rates of mobility difficulties were similar among Russian origin men and women and the general population. Among Kurdish origin men and women, the prevalence of all mobility difficulties was significantly higher compared to the general population. Similarly among Somali origin women, all mobility difficulties were more prevalent compared to women in the general population. Among Somali origin men, difficulties in climbing several flights of stairs and mobility limitation were more common than in men in the general population. Poor performance in the timed chair stand test was more common in the foreign-born populations than in the general population.

Three models were used to examine the association between population group and mobility limitation, while adjusting for sociodemographic, health and migration related variables (Table 4). These main results were analyzed together for men and women. Somali and Kurdish origin populations were found to have increased odds for mobility limitation compared to the general population in Finland. Adjusting for marital status, education, employment and economic situation clearly reduced the strength of these associations in both groups (Model 2). Adding health-related variables to the model made little changes to the associations (Model 3).

Table 4.   Association between population group and mobility limitation[1]

	Russian origin	Somali origin	Kurdish origin	Ref. group
	OR (95% CI)	OR (95% CI)	OR (95% CI)	
Model 1	1.40 (0.92–2.13)	**6.31 (4.10–9.71)**	**12.25 (8.25–18.19)**	1.00
Model 2	1.47 (0.93–2.32)	**3.29 (1.96–5.51)**	**8.31 (5.31–13.01)**	1.00
Model 3	1.51 (0.93–2.43)	**3.61 (2.07–6.29)**	**7.40 (4.65–11.77)**	1.00

[1] Logistic regression modelling the probability of having mobility limitation, defined as self-reported difficulty in walking 500 meters or stair climbing
OR=odds ratio, bolded ORs are statistically significant associations; 95% CI=95% confidence interval
Model 1: adjusted for age and gender
Model 2: adjusted for age, gender, marital status, education, employment status, and economic situation
Model 3: adjusted for age, gender, marital status, education, employment status, economic situation, body mass index, selected chronic conditions, and permanent injuries
Ref. group=comparison group from the general population in Finland

6.3 Mental health symptoms in the studied populations (II)

The prevalence of mental health symptoms was examined in sub-study II using the HSCL-25. The highest prevalence of mental health symptoms among Russian origin men was found for depressive symptoms (12%) and the lowest prevalence (4%) for anxiety symptoms (Table 5). Among Russian origin women, the prevalence rates for the HSCL-25 and the depression and anxiety subscales were similar (23–24%), and somatization was nearly as common (21%). Among Somali origin men and women, the prevalence of mental health symptoms was highest for somatization (8% and 17%, respectively) and lowest for anxiety symptoms (4% and 8%, respectively). Among Kurdish origin men, the highest prevalence of mental health symptoms was found for depressive symptoms (26%) and the lowest prevalence for somatization and anxiety symptoms (20–21%). Among Kurdish origin women, the prevalence rates for the HSCL-25 and the depression subscale were similar (49–50%), and anxiety symptoms and somatization were nearly as common (40–43%).

Table 5. The prevalence of mental health symptoms in the studied populations[1] (%)

	Russian origin	Somali origin	Kurdish origin	Ref. group
MEN[2]	n=168	n=155	n=277	n=420
Mental health symptoms[3]	8.2	4.7	23.0***	8.7
Depressive symptoms[4]	11.9	6.2	25.8***	10.3
Anxiety symptoms[5]	4.0	4.0	19.6***	4.9
Somatization[6]	5.2	8.0	20.5	NA
WOMEN[2]	n=300	n=222	n=238	n=536
Mental health symptoms[3]	23.7***	11.2	49.3***	9.6
Depressive symptoms[4]	22.9**	12.8	49.7***	10.7
Anxiety symptoms[5]	23.0***	8.4	42.7***	8.9
Somatization[6]	20.8	16.6	39.7	NA

[1] Age-adjusted and weighted prevalence
[2] Crude n
[3] Depressive and anxiety symptoms, HSCL-25 (Hopkins Symptom Checklist-25), cut-off point > 1.75
[4] HSCL-25 (Hopkins Symptom Checklist-25), depression subscale, cut-off point > 1.75
[5] HSCL-25 (Hopkins Symptom Checklist-25), anxiety subscale, cut-off point > 1.75
[6] SCL-90 (Symptom Checklist-90), somatization subscale, cut-off point 8/12 symptoms
* p-value < 0.05; ** p-value < 0.01; *** p-value < 0.001 (difference compared to the reference group, Satterthwaite adjusted F-statistic)
NA=Data not available for reference group (statistically significant difference in the prevalence of somatization between the Russian, Somali and Kurdish origin populations, p-value <0.001)
Ref. group=comparison group from the general population in Finland

The prevalences of mental health symptoms in the foreign-born populations were compared to the general population by gender. In men in the general population, depressive symptoms were more prevalent (10%) than anxiety symptoms (5%). In women the prevalence of depressive and anxiety symptoms were similar (9–11%). Compared to the general population, the prevalence of mental health symptoms was significantly higher among Kurdish origin persons and Russian origin women. Among Russian origin men and Somali origin men and women, the prevalence of mental health symptoms did not differ from that in the general population in Finland.

Two models were used to examine the association between population group and mental health symptoms, while adjusting for sociodemographic and migration related variables (Table 6). Kurdish origin men had increased odds for mental health symptoms compared to men in the general population. Similarly, Kurdish origin women and Russian origin women had increased odds for mental health symptoms compared to women in the general population. Adjusting for education, marital status, and employment status reduced the odds ratios. As a result, Somali origin men showed decreased odds for mental health symptoms as compared to men in the general population.

Table 6.   Association between population group and mental health symptoms[1]

	Russian origin OR (95% CI)	Somali origin OR (95% CI)	Kurdish origin OR (95% CI)	Ref. group
MEN				
Model 1	0.94 (0.42–2.12)	0.52 (0.21–1.25)	**3.15 (1.80–5.51)**	1.00
Model 2	0.74 (0.30–1.83)	**0.35 (0.13–0.95)**	**2.45 (1.31–4.59)**	1.00
WOMEN				
Model 1	**2.93 (1.54–5.57)**	1.19 (0.55–2.55)	**9.21 (4.71–18.00)**	1.00
Model 2	**2.50 (1.20–5.21)**	0.68 (0.30–1.58)	**6.33 (3.15–12.72)**	1.00

[1] Logistic regression modelling the probability of having mental health symptoms (Hopkins Symptom Checklist-25, cut-off point > 1.75)
OR=odds ratio, bolded ORs are statistically significant associations; 95% CI=95% confidence interval
Model 1: adjusted for age
Model 2: adjusted for age, education, marital status, and employment status
Ref. group=comparison group from the general population in Finland

6.4 Association between mental health, mobility limitation and other factors (I–III)

Sub-study I examined the associations between various sociodemographic, health and migration related factors and mobility limitation. Age was found to increase the odds for mobility limitation in the foreign-born populations and in the general population in Finland (odds ratio [OR] 1.09; 95% confidence interval [CI] 1.07–1.10). Also being unemployed (OR 1.83; 95% CI 1.26–2.66) or economically inactive (OR 2.14; 95% CI 1.53–2.98) increased the odds for mobility limitation in all the groups. There were, instead, differences in the associations between education, economic situation and mobility limitation between the groups. A low level of education increased the odds for mobility limitation in all other groups except for the population of Russian origin, while a difficult economic situation increased the odds for mobility limitation only in the general population (OR 4.66; 95% CI 2.58–8.42). Obesity (OR 2.74; 95% CI 2.05–3.67), chronic conditions (OR 2.37; 95% CI 1.79–3.15), and injuries (OR 2.67; 95% CI 1.78–4.00) clearly increased the odds for mobility limitation. Time in Finland or language proficiency in Finnish and Swedish did not show an association with mobility limitation.

Sub-study II examined the associations between various sociodemographic factors and mental health symptoms. Age increased the odds for mental health symptoms in Russian (OR 3.03; 95% CI 1.63–5.65) and Kurdish origin women (OR 1.76; 95% CI 1.08–2.86). In Russian origin men and men in the general population, those who were not married or cohabiting had increased odds for mental health symptoms (OR 8.65; 95% CI 1.44–51.87 and OR 5.54; 95% CI 2.29–13.42, respectively). A low level of education increased the odds for mental health symptoms only in Kurdish origin men (OR 2.11; 95% CI 1.17–3.83). A difficult financial situation increased the odds for mental health symptoms in women in all the studied groups (Russian origin OR 4.44, 95% CI 2.27–8.68; Somali origin OR 4.65, 95% CI 1.02–21.15; Kurdish origin OR 2.39, 95% CI 1.39–4.09) and Kurdish origin men (OR 2.87; 95% CI 1.46–5.63). Unemployment and economic inactivity increased the odds for mental health symptoms in Kurdish origin women (OR 1.94; 95% CI 1.05–3.57). In the general population, unemployment was associated with mental health symptoms in both men (OR 20.26; 95% CI 6.71–61.20) and women (OR 36.61; 95% CI 7.15–187.41), and economic inactivity in women (OR 6.67; 95% CI 2.62–16.97).

No association was found between migration-related factors and mental health symptoms in men. In women, living in Finland for less than six years increased the odds for mental health symptoms in persons of Somali (OR 4.33; 95% CI 1.23–15.21) and Kurdish origin (OR 2.21; 95% CI 1.06–4.64). Poor knowledge of Finnish and Swedish increased the odds for mental health symptoms among persons of Russian (OR 3.46; 95% CI 1.50–7.98) and Kurdish origin (OR 2.15; 95% CI 1.09–4.21). Moving to Finland at the age of 18 years or older increased the odds for mental health symptoms in Kurdish origin women (OR 2.16; 95% CI 1.11–4.20), while a refugee background decreased this odds

ratio (OR 0.47; 95% CI 0.27–0.82). No significant associations were found between illiteracy and mental health symptoms.

The associations between mental health symptoms and mobility limitation were examined in sub-study III (Table 7). In Kurdish origin men, anxiety symptoms, but not depressive symptoms, were associated with mobility limitation, while in men in the general population, depressive symptoms, but not anxiety symptoms, were associated with mobility limitation. Depressive symptoms increased the odds for mobility limitation in women in all of the studied groups. Anxiety symptoms increased the odds for mobility limitation in Russian and Kurdish origin women and women in the general population. This association was also near statistical significance in Somali origin women.

Table 7.   Association between mental health symptoms and mobility limitation[1]

	Russian origin OR (95% CI)	Somali origin OR (95% CI)	Kurdish origin OR (95% CI)	Ref. group OR (95% CI)
MEN				
Depression[2]	NA	NA	1.85 (0.87–3.94)	**4.58 (1.55–13.53)**
Anxiety[3]	NA	NA	**2.74 (1.15–6.54)**	3.32 (0.84–13.12)
WOMEN				
Depression[2]	**2.78 (1.18–6.54)**	**4.90 (1.08–22.22)**	**2.74 (1.49–5.05)**	**4.34 (1.87–10.08)**
Anxiety[3]	**2.64 (1.16–6.01)**	6.98 (0.99–49.09)	**3.20 (1.74–5.90)**	**8.08 (3.05–21.43)**

[1] Logistic regression modelling the probability of having depressive symptoms / anxiety symptoms, adjusted for age and education
[2] Depressive symptoms, Hopkins Symptom Checklist-25, depression subscale, cut-off point > 1.75
[3] Anxiety symptoms, Hopkins Symptom Checklist-25, anxiety subscale, cut-off point > 1.75
OR=odds ratio, bolded ORs are statistically significant associations; 95% CI=95% confidence interval
NA=not applicable, Russian and Somali origin men were excluded due to too few observations
Ref. group=comparison group from the general population in Finland

6.5 Perceived discrimination and its association with health (IV)

The prevalences of reporting no discrimination, subtle discrimination only and overt or subtle and overt discrimination were examined in sub-study IV (Table 8). No experiences of discrimination were reported by 59% of Russian origin persons, 62% of Kurdish origin persons and 63% of Somali origin persons. Experiences of subtle discrimination were more common than overt discrimination in all three groups. Subtle discrimination, meaning treated less politely than others and/or treated less respectfully than others, was reported by 29% of Somali origin persons and 35% of persons of Russian or Kurdish origin. Overt discrimination, meaning called names or insulted and/or threatened or harassed, was reported by 22% of Russian origin persons, 23% of Kurdish origin persons and 24% of Somali origin persons. Among persons of Russian origin, 19% reported only subtle experiences of discrimination, and 22% reported either overt or both overt and subtle experiences. These figures among Somali origin persons were 12% and 24%, and among Kurdish origin persons 16% and 23%.

The prevalence of perceived discrimination was also examined by reason for migration and region in Finland. No differences in the prevalence of discrimination were found by reason for migration. Experiences of discrimination were, instead, shown to differ by region in Finland. Among persons of Russian origin, experiences of discrimination were less common in the capital city, while experiencing overt or subtle and overt discrimination was more common among those living in the other cities. Among persons of Somali origin, the prevalence of perceived discrimination varied significantly by region: 41% of the Somali origin participants living in the capital city area reported any experiences of perceived discrimination, while only 13% of the participants living in the other cities (Turku and Tampere) reported experiences of discrimination. Among persons of Kurdish origin, no differences in the prevalence of perceived discrimination by region were found.

Experiencing subtle discrimination only increased the odds for poor self-rated health (SRH) among persons of Russian and Kurdish origin (Table 9). These associations remained statistically significant also in Model 2, which adjusted for education, time since migration and region of residence in Finland, in addition to age and gender. Among Somali origin persons, significant associations between discrimination and SRH were found only in the gender-stratified analyses for women reporting overt or subtle and overt discrimination. Experiencing subtle discrimination only increased the odds for limiting long-term illness or disability (LLTI) among persons of Russian and Kurdish origin, both in Models 1 and 2. Among persons of Somali origin, the associations between discrimination and LLTI were not statistically significant. Perceived discrimination increased the odds for mental health symptoms, and these associations were found both for those reporting subtle discrimination only and for those reporting overt or subtle and overt discrimination, in Models 1 and 2 alike. The associations between perceived discrimination and mental health could, however, be examined only among persons of

Russian and Kurdish origin, since too few observations of mental health symptoms were found for persons of Somali origin.

Table 8. The prevalence of perceived discrimination in the studied groups[1]

	No discrimination	Subtle[2] discrimination only	Overt[3] or subtle and overt discrimination	p-value[4]
Russian origin	58.9	19.0	22.1	
Capital city	60.6[*]	20.2	19.2[**]	**0.016**
Other cities[5]	53.9	17.0	29.1	
Somali origin	63.4	12.3	24.3	
Capital city	59.5[***]	13.5[**]	27.0[***]	**<0.001**
Other cities[5]	87.1	3.3	9.6	
Kurdish origin	61.7	15.5	22.8	
Capital city	62.6	15.6	21.9	0.515
Other cities[5]	60.0	14.4	25.5	
p-value[6]	0.522	**0.013**	0.801	

[1]Weighted prevalence adjusted for age and gender
[2]Reporting being treated less politely than others and/or treated less respectfully than others
[3]Reporting being called names or insulted and/or threatened or harassed
[4]Difference within each group by region in Finland; *p-value < 0.05; **p-value < 0.01; ***p-value < 0.001
[5]Turku, Tampere and Vaasa for Russian and Kurdish origin group, Turku and Tampere for Somali origin
[6]Difference between the three groups in the overall prevalence of different types of discrimination (Satterthwaite adjusted F-statistic), bolded p-values are statistically significant (<0.05)

Table 9.   Association between discrimination and health[1]

	Russian origin (n=684) OR (95% CI)	Somali origin (n=475) OR (95% CI)	Kurdish origin (n=610) OR (95% CI)
MODEL 1			
Self-rated health			
No discrimination	1.00	1.00	1.00
Subtle discrimination only[2]	**2.34 (1.47–3.74)**	1.65 (0.62–4.37)	**1.65 (1.00–2.72)**
Overt[3] or subtle and overt	1.35 (0.81–2.24)	1.77 (0.83–3.77)	1.19 (0.78–1.80)
Limiting long-term illness			
No discrimination	1.00	1.00	1.00
Subtle discrimination only[2]	**1.77 (1.12–2.80)**	1.20 (0.48–2.99)	**2.21 (1.38–3.55)**
Overt[3] or subtle and overt	1.40 (0.87–2.24)	1.11 (0.55–2.26)	0.94 (0.60–1.46)
Mental health symptoms			
No discrimination	1.00	NA	1.00
Subtle discrimination only[2]	**2.37 (1.23–4.57)**		**1.74 (1.06–2.86)**
Overt[3] or subtle and overt	**2.59 (1.35–4.97)**		**1.67 (1.07–2.63)**
MODEL 2			
Self-rated health			
No discrimination	1.00	1.00	1.00
Subtle discrimination only[2]	**2.30 (1.42–3.73)**	1.67 (0.58–4.77)	**1.78 (1.04–3.05)**
Overt[3] or subtle and overt	1.50 (0.87–2.59)	2.12 (0.91–4.94)	1.39 (0.91–2.14)
Limiting long-term illness			
No discrimination	1.00	1.00	1.00
Subtle discrimination only[2]	**1.71 (1.07–2.74)**	1.13 (0.44–2.91)	**2.43 (1.50–3.95)**
Overt[3] or subtle and overt	1.52 (0.92–2.51)	1.03 (0.48–2.19)	0.99 (0.63–1.56)
Mental health symptoms			
No discrimination	1.00	NA	1.00
Subtle discrimination only[2]	**2.40 (1.24–4.64)**		**1.95 (1.17–3.25)**
Overt[3] or subtle and overt	**2.45 (1.22–4.90)**		**2.02 (1.28–3.21)**

[1] Logistic regression, modeling the probability of having poor self-rated health/limiting long-term illness or disability/mental health symptoms
[2] Reporting being treated less politely than others and/or treated less respectfully than others
[3] Reporting being called names or insulted and/or threatened or harassed
OR=odds ratio, bolded ORs are statistically significant associations; 95% CI=95% confidence interval
Model 1 adjusting for age and gender
Model 2 adjusting for age and gender, education, time lived in Finland, and region of residence in Finland

7 Discussion

7.1 Summary of main results

The objective of this study was to improve knowledge on the health of three significant population groups in Finland i.e. persons of Russian, Somali and Kurdish origin, defined on the basis of birthplace and mother tongue. The study specifically examined mobility limitations, mental health symptoms and perceived discrimination, the association between mental health symptoms and mobility limitations, and the association between perceived discrimination and indicators of health. The findings suggest certain concerns in the physical and mental health of Russian, Somali and Kurdish origin populations in Finland. The main results are summarized as follows:

First, mobility limitations were highly prevalent among Somali and Kurdish origin women and Kurdish origin men. Overall, mobility limitations were more prevalent among Somali and Kurdish origin populations compared to the general population in Finland. Adjusting for sociodemographic factors showed some reductions in the increased odds for mobility limitations. The prevalence of mobility limitations in the Russian origin population did not differ from that in the general population.

Second, mental health symptoms were very common among Russian origin women and Kurdish origin men and women. The prevalence of mental health symptoms in these populations was higher than in the general population. Adjusting for sociodemographic factors made some reductions to the increased odds for mental health symptoms. The prevalence of mental health symptoms in the Somali origin population and Russian origin men did not differ from the prevalence observed in the general population.

Third, various factors were associated with mobility limitations and mental health symptoms. For instance, being unemployed or economically inactive increased the odds for mobility limitation in all the groups, while a difficult economic situation increased the odds for mental health symptoms in women in all the studied groups. Among Somali and Kurdish origin women, shorter time since migration increased the odds for mental health symptoms, while poor language proficiency increased the odds for mental health symptoms in Russian and Kurdish origin women. An association was also found between mental health symptoms and mobility limitation.

Last, perceived subtle discrimination was more common than experiences of overt discrimination in all the studied groups. Some differences were found in the prevalence of perceived discrimination between the capital city area and the other cities. Discrimination increased the odds for poor self-reported health, limiting long-term illness or disability and mental health symptoms, also among those reporting subtle discrimination only. The associations between perceived discrimination and health were demonstrated mainly among Russian and Kurdish origin populations, but also for Somali origin women.

7.2 Interpretation of main findings

Studies on migration and health are suggested to be particularly prone to mistaken conclusions, since no research design is fully capable of controlling for the myriad of environmental variables that change due to migration (Friis et al., 1998). Meaningful interpretation is often hindered by incomplete information on pre-migration exposures, the migration process and the role of health selection (Acevedo-Garcia et al., 2012). Recognizing these challenges, the main findings of this study are discussed separately for each of the studied populations.

First, this study demonstrated a high prevalence of mental health symptoms among Russian origin women, with a fourth of Russian origin women reporting severe mental health symptoms. Evidence from the US and Israel have similarly demonstrated higher levels of depression and psychological distress among immigrants from the FSU as compared to native born populations (e.g. Miller & Gross, 2004; Miller et al., 2006; Mirsky et al., 2008; Mirsky, 2009). Women have been shown to report significantly higher scores for depressed mood than men (Miller, Sorokin & Fogg, 2013). The findings of this study are particularly significant considering the size of the Russian origin population in Finland. Furthermore, health needs among the Russian origin population may not receive as much attention as populations with a refugee background, which are often seen as potentially vulnerable. Instead the Russian origin population is less visible and culturally more proximal to the Finnish population (Liebkind & Jasinskaja-Lahti, 2000), and thus their health needs may be more easily overlooked.

The prevalence of mobility limitations did not differ between the Russian origin population and the general population in Finland. This finding fits with reports of lower odds for overweight and obesity among Russian origin women compared to the general population, while increased odds were found among persons of Somali and Kurdish origin (Bastola et al., 2017; Kinnunen et al., 2017). Health selection may also explain the low prevalence of mobility limitations among the Russian origin population, and low prevalence of mental health symptoms among Russian origin men, as health selection is particularly strong at working ages and among labor migrants (Elo et al., 2011). These findings may also in part be explained by health-selective emigration, as health-selective return migration is proposed to be particularly relevant when the countries of origin and destination are in close proximity to each other (Elo et al., 2011). It should, however, be noted that although the prevalence of mobility limitations did not differ between the Russian origin population and the general population in Finland, poor performance in the chair stand test was more common among Russian origin persons as compared to the general population.

This study also showed that Russian origin persons in Finland experience both subtle and overt discrimination, and these experiences increased the odds for poor physical and mental health. This is similar to the findings of Castaneda and colleagues (2015). Also Liebkind & Jasinskaja-Lahti (2000) have demonstrated that experiences of discrimination impact the degree of psychological stress among the Russian population in Finland. They

explain that populations that are less visible, such as persons of Russian origin in Finland, may be more likely to attribute negative events and discriminatory experiences internally, whereas members of more visible or stigmatized groups may attribute these events externally (e.g. to the perpetrators racism as opposed to personal deficiencies).

Second, this study found a high prevalence of mobility limitations among women of Somali origin, with almost half of Somali origin women reporting difficulties walking 500 meters or climbing several flights of stairs. The prevalence of mobility limitations among Somali origin men was not as high as that found among women, but nevertheless higher than the prevalence of mobility limitations in men in the general population. Poor performance in the chair stand test was also very common among persons of Somali origin, supporting the self-reported findings. It is noteworthy that mobility limitations were highly prevalent already in the working-age population. This may reflect discrepancies in chronological definitions of ageing between traditional and community definitions of old age. Mölsä and colleagues (2014) have proposed that the definition of old age may differ between Somalis and the population in Finland. This is understandable considering that the life expectancy at birth of Somali men is 53 years and women 57 years (United Nations Statistics Division, 2016). This may be relevant knowledge also for service providers in Finland, as self-identification of functional limitations depends on what level of functioning a person considers appropriate for their age and peer-group (World Health Organization, 2011).

The population of Somali origin showed low prevalence rates of mental health symptoms, which did not differ from the general population in Finland. Among Somali origin women, shorter time since migration and a difficult financial situation increased the odds for mental health symptoms. However, some of the analyses in this study could not be conducted among the Somali origin group due to too few observations of mental health symptoms. Findings on the low prevalence of mental health symptoms among the Somali origin population are supported by some previous studies. For instance, refugees and asylum seekers from Afghanistan and Iran to the Netherlands have shown increased odds for depressive and anxiety symptoms, as measured by the HSCL-25, compared to persons from Somalia (Gerritsen et al., 2006). At the same time, the severe social stigma related to mental health symptoms in Somali communities should not be overlooked (Mölsä et al., 2010). Moreover, the causal attributions of mental health problems among Somali origin populations may differ from that expected by practitioners in Finland (Kuittinen et al. 2017a). To address the mental health of Somali communities, Mölsä and colleagues (2017) have called for culturally appropriate general and mental health services, underlining the importance of acknowledging clients' preferences, needs, and alternative healing practices. Kuittinen and colleagues (2017b) have also demonstrated limitations related to the use of the HSCL-25 among Somali origin populations, discussed further under methodological considerations.

Reporting no experiences of discrimination was surprisingly high among persons of Somali origin, as compared to previous evidence on Somali origin populations in Finland (e.g. European Union Agency for Fundamental Rights, 2009). One explanation for the low prevalence of perceived discrimination in this study could be the denial of discrimination,

which Fox and colleagues (2015) propose as a strategy for mitigating the stigmatizing and dehumanizing effects of the minority and/or migrant experience. An association between perceived discrimination and health was found only for Somali origin women. Liebkind & Jasinskaja-Lahti (2000) have demonstrated that even though Somalis experienced the most discrimination as compared to the other studied groups (Russians, Ingrian/Finnish returnees, Estonians, Arabs, Vietnamese and Turks), they reported the least stress symptoms. An interesting paradox between the frequency of discrimination and its association with psychological stress has been demonstrated among Arab Americans in the US: discrimination was more frequently reported by Muslim Arab Americans, those identifying as non-white, and those living in ethnic enclaves, while the negative association between discrimination and psychological distress was stronger for Christian Arab Americans, those identifying as white, persons with dark skin color, and those living outside ethnic enclaves (Abdulrahim, James, Yamout & Baker, 2012).

Third, this study demonstrated a high prevalence of mobility limitations and mental health symptoms among the Kurdish origin population. These findings are highly concerning. More than half of Kurdish origin women reported mobility limitations and almost half reported severe mental health symptoms. Almost a third of Kurdish origin men reported mobility limitations and a fourth reported severe mental health symptoms. Also poor performance in the chair stand test was very common among men and women of Kurdish origin. These findings on poor physical and mental health among the Kurdish origin population are supported by studies on Kurdish, Iranian or Iraqi immigrants in various destination countries (e.g. Nørredam et al., 2009; Sundquist et al., 2000; Taloyan et al., 2008; Tinghög et al., 2010). Mental health symptoms are shown to be prevalent not only among those that have migrated, but also among the populations living in Iraq and Iran (Al-Hamzawi, Bruffaerts, Bromet, AlKhafaji & Kessler, 2015; Mofidi, Ghazinour, Araste, Jacobsson & Richter, 2008), reflecting the history of conflict in the region. This can also be seen in the findings of Castaneda and colleagues (2017) demonstrating a high prevalence of potentially traumatic pre-migration experiences among Kurdish origin populations in Finland.

This study also showed that Kurdish origin persons in Finland experience both subtle and overt discrimination, and that perceived discrimination increased the odds for poor physical and mental health. This finding is in line with previous work that has been conducted using Maamu data (Castaneda et al., 2015). The importance of recognizing discrimination and its negative association with health is also demonstrated in other studies including Kurdish, Iranian or Iraqi immigrants in various destination countries. For instance Wiking and colleagues (2004) showed that the high risk of poor self-reported health among Iranian women decreased to non-significance when adjusting for low SES, poor language proficiency in Swedish, and perceived discrimination.

Interestingly vast differences were found between the Somali and Kurdish origin populations, although both groups were initially considered potentially vulnerable due to the common history of involuntary migration. Firstly, the differences in the prevalence of mental health symptoms between Somali and Kurdish origin populations may in part be explained by the stigma related to mental illness particularly among Somali communities.

Secondly, considering the sending societies may explain some of the found differences: at a country-level Somalia is considerably poorer than Iraq or Iran. Relative poverty, understood as how much you have compared to other people in your society, is known to be important for health (M. Marmot, 2004). Thus relative to peers in Somalia, the Somali origin population in Finland may be more content in their current life situation, which in turn may have a protective and positive effect on mental health. Conversely, downward social mobility may be more common among persons of Kurdish origin. The compatibility of pre-migration expectations and post-migration experiences is shown to influence the wellbeing of immigrants (Mähönen, Leinonen & Jasinskaja-Lahti, 2013). Mölsä and colleagues (2017) have also suggested that, at least among older Somalis in Finland, high religiousness may buffer the effects of negative life events on mental health.

Despite good intentions, inequities can be inadvertently and incorrectly framed as evidence of ethnic differences (Ford & Harawa, 2010). Such research can be easily abused by those who wish to demonstrate inferiority and superiority of particular groups (R. S. Bhopal, 2013). For example, the term "ethnic gap" was boldly coined in sub-studies I and II. The reasoning for using this term was to point towards inequality, as in "closing the gap" strategies (CSDH, 2008), the "gender gap" in health (Mechakra-Tahiri, Freeman, Haddad, Samson & Zunzunegui, 2012) and the "service gap" demonstrated among refugees with disabilities (Mirza & Heinemann, 2012). Moreover, differences between populations that remain after adjusting for SES may be wrongly left and assumed by readers to be caused by cultural or genetic reasons (Nazroo, 2003). It is important to note that the associations between SES and health are known to vary across ethnic groups (Braveman et al., 2005; Dinesen et al., 2011; Fischbacher et al., 2014), and the comparability of SES measures is challenged by complex methodological issues (Braun & Mohler, 2003; Nielsen, Hempler & Krasnik, 2013). Overall, failure to acknowledge the impact of early life experiences and circumstances may lead to potentially flawed conclusions about the associations between adult SES and adult health (Elo, 2009).

Finally, this study defined the studied groups a priori, and then examined differences between these groups and the general population. This was based on the assumption that these groups are meaningful social groupings that reflect the unequal and often unjust distribution of resources and life opportunities (Kawachi, Subramanian & Almeida-Filho, 2002). This does not necessarily mean that the studied persons would consider the groups formed in this study to be meaningful. Instead, migration research is often conceptually blind to observe cases where no transnational communities form among migrated populations or situations where existing communities are no longer meaningful for individuals (Mahmoud, 2013). For example, the categorization of the Russian origin group can be contested, as this group included also Ingrian Finns. Presenting Ingrian Finns as non-Finnish contributes to the construction of Finnishness (Mähönen, Varjonen, Prindiville, Arndold & Jasinskaja-Lahti, 2015), even if this is not intended. Nonetheless, the use of such binaries creates a bicultural situation of 'self' and 'other' that leaves little room for negotiation, hybridity, or fusion of cultures (Kirkham & Anderson, 2002).

7.3 Methodological considerations

This study used population-based data on Russian, Somali and Kurdish origin working-aged persons in Finland. Data for the general population was used as a comparison. The study has certain strengths such as the population-based study design, analyzing the foreign-born population groups separately, including comparative data from the general population, and the relatively high participation rate. The participation rates to at least one part of the survey were 70% among Russian origin, 51% among Somali origin, and 63% among Kurdish origin persons. The participation rate among the Russian origin population was the same as the participation rate among the general population to the Health 2011 Survey. Survey data on migrants commonly have serious limitations, including low response rates (Rechel et al., 2012). Many previous cross-sectional studies have had to rely on data with considerably low participation rates. For instance, a previous study on discrimination among seven immigrant groups in Finland had a 37% participation rate, with the lowest participation rate (18%) found among Somalis (Liebkind & Jasinskaja-Lahti, 2000). Still several limitations need to be discussed. First, the sample size of the study was relatively small. Thus, some associations may be missing due to lacking statistical power. In some of the settings, the small number of observations led to wide confidence intervals. Some of the analyses that were stratified by gender could not be conducted in all of the studied groups. Furthermore, not all potentially interesting confounding variables could be included in the analyses. The effects of non-response cannot be completely corrected for, particularly among Somali origin participants who had the lowest participation rate.

There are also limitations related specifically to the measurements used in this study. First, no reports of cross-cultural validation of the interview questions on mobility were found, and such validation could not be included within the frame of this study. The findings of this study are primarily based on self-reported measures. Research, however, shows that self-reported measures can differ significantly from information acquired from performance-based measures (Ferrer, Lamarca, Orfila & Alonso, 1999; Royall et al., 2007). In the Finnish population, significant disagreement has been demonstrated between self-reported and test-based indicators of stair climbing (Sainio et al., 2006). It should be noted that the asked activities in this study were fairly easy for working-age population, which may result in a ceiling effect and be demonstrated in the low prevalence of mobility limitation particularly in men. On the other hand, over-reporting of mobility difficulties is possible particularly if the requested activities are not routinely performed by the respondent (Haas, Krueger & Rohlfsen, 2012). Poor performance in the chair stand test was common in the studied population groups, supporting the self-reported results. At the same time, audits of the assessment situations suggested differences in the conduct of the study nurses and participants e.g. in eagerness in the test situation.

There are also limitations related to the measurement of mental health symptoms. A fundamental issue in assessing the mental health of different population groups is the cross-cultural validity and reliability of measurements. Although differences in the

conceptualization and manifestation of distress and symptoms are found across populations and cultures (Draguns & Tanaka-Matsumi, 2003), the symptoms criteria of most self-report and interview rating scales have been designed for patients from Western countries (Marsella, 2003). Depression, for instance, occurs widely in different cultural contexts, yet constructs like depressive experience do not have universal connotative meanings (Karasz, 2005; Marsella, 2003). Cross-national differences have also been demonstrated in social desirability; evidence shows that respondents from collectivist cultures are more subject to social desirability than respondents from individualistic societies (Johnson & Van de Vijver, Fons J.R., 2003). Reporting sensitive issues among members of one's own community may have led to reporting bias, although confidentiality was highly stressed both in the training of personnel as well as in recruiting participants and obtaining informed consent. Still expressing mobility difficulties or mental health symptoms may be considered socially undesirable and result in under-reporting, particularly among men. Under-reporting may also be caused by the stigma related to mental health, particularly in the Somali community.

This study measured mental health symptoms primarily using the HSCL-25 (Derogatis et al., 1974). The cut-off point of 1.75 was applied as an indication of clinically significant symptoms equivalent to an anxiety or depressive disorder (Nettelbladt et al., 1993). The HSCL-25 has been shown to have good reliability and validity cross-culturally (Bean, Derluyn, Eurelings-Bontekoe, Broekaert & Spinhoven, 2007) and in clinical refugee samples (Hollifield et al., 2002). It has been proposed as a suitable measure for comparing groups of different cultural origin residing in westernized countries (Tinghög & Carstensen, 2010) and in multicultural settings (Davidson, Murray & Schweitzer, 2010). The HSCL-25 has frequently been used to assess depression and anxiety in refugee populations (Bogic et al., 2015). More recently, however, Kuittinen and colleagues (2017b) demonstrated that the HSCL-25 and the SCL-90 somatization scale have limitations that affect their valid use among Russian, Somali and Kurdish origin populations. Their work does not support separating depressive, anxiety and somatization symptoms into distinct disorder categories in these populations. Hence differences in symptoms of depression, anxiety and somatization between these groups may in part be explained by challenges in measurement.

Limitations also exist related to the measures of self-rated health (SRH) and perceived discrimination. Despite being widely used, SRH is also widely criticized (Agyemang, Denktas, Bruijnzeels & Foets, 2006). Assessments of SRH among immigrants are shown to vary e.g. by language proficiency (Lommel & Chen, 2016). Also survey response, sample size and survey mode are shown to be associated with the prevalence of very good or good SRH (Croezen, Burdorf & van Lenthe, 2016). Overall, data artefacts, or errors, may disproportionately affect health measures among migrant populations relative to how they bias measurements in other population groups (Riosmena, Wong & Palloni, 2013). Perceived discrimination is, in turn, only one aspect of discrimination (Williams & Mohammed, 2009), and self-reports of discrimination may produce underestimates due to various limitations (Krieger, Smith, Naishadham, Hartman & Barbeau, 2005).

Last, determining causal pathways is impossible with the type of cross-sectional data used in this study. The theoretical directions of the studied associations have been drawn from conceptual frameworks and previous research. However, the relationship between mental health symptoms and mobility limitations or discrimination and indicators of health may be envisaged in both directions. For instance, more experiences and perceptions of discrimination may produce mental health problems, but poor mental health may also lead to greater perception of discrimination. Moreover, due to response tendency, participants with mental health symptoms may assess their mobility more pessimistically than participants without mental health symptoms. Determining causal pathways between the studied phenomena will require longitudinal data. The lack of longitudinal data also prevents the meaningful application of the life course perspective. Qualitative data could, in turn, enrich understanding of individual behavior and how the questions on mobility limitations and mental health symptoms have been understood in the studied populations. It is also essential to note that there are uncertainties in the generalizability of these results beyond the Finnish context, and limited generalizations should be made to other foreign-born populations within Finland.

7.4 Implications

7.4.1 Implications for future research

Intertwining research on migration, ethnicity, racism, and health is highly needed and new advances in this field are pushed for globally (R. S. Bhopal, 2017). In Finland, diversity-related public health research is likely to increase in the future. This study can be positioned as part of an intermediate phase of adjustment to the increased diversity of the population in Finland. This idea is introduced in the dissertation of Buchert (2015), in which public welfare services specifically created and named as related to immigrancy are described as a necessary, albeit temporary, intermediate phase that is part of the adjustment to the increased diversity of the population in Finland. This study provides a valuable first step and new knowledge on significant population groups in Finland. In the next phase, diversity-related public health research should move from seeing ethnicity as something in the world to recognizing it as a perspective on the world (Brubaker, 2009). Drawing on Nietzsche, Mahmoud (2013) argues that there are essentially no opposite groups of 'natives' and 'immigrants', only differences in degree. However, little research has thus far been done to conceptually re-imagine identity beyond this dichotomist frame of "us" and "them" (Mahmoud, 2013)

It is already timely to discuss how research on migration and health could and should evolve to incorporate and acknowledge the increasing diversity of the population in Finland (Buchert & Rask, 2017; Rask, 2017). Migration studies have often mirrored a nationalist image of describing migrated persons as culturally others, socially marginal, exceptions to the rule of territorial confinement, and even political security threats

(Wimmer & Glick-Schiller, 2002). These boundaries of "us" and "them" set by a researcher are a question of social construction with concrete ramifications on the lives of individuals (Mähönen et al., 2015). As formulated in the Thomas theorem: situations defined real, are real in their consequences (W. I. Thomas & Thomas, 1970). As the ultimate motivation for migration and health research is to produce research that is beneficial to the population being studied (Pottie & Gabriel, 2014), future diversity-related public health research should explore and expand existing notions of 'Finnishness' and advocate for shared belonging.

The potential benefits of diversity-related public health research could be advanced by drawing on understanding from critical theories. For example, the principles of critical race theory (CRT) have been considered beneficial for population health research, particularly for improving the quality and robustness of investigations and ultimately improving the health of ethnic minorities more effectively (Graham, Brown-Jeffy, Aronson & Stephens, 2011). The public health critical race (PHCR) praxis was specifically developed to tailor CRT to the field of public health (Ford & Airhihenbuwa, 2010a; Ford & Airhihenbuwa, 2010b). The PHCR praxis has been endorsed as the framework for fourth-generation research in health disparities (Thomas, Quinn, Butler, Fryer & Garza, 2011). Also intersectionality is relevant to public health with its broad embrace of multiple intersecting identities and multiple interlocking forms of privilege and oppression (Bowleg, 2012). Intersectionality can also be used to approach intersectional marginalizing experiences due to racism, sexism, and heterosexism (Lee & Brotman, 2011). Disability scholars advocate examining the intersection of racism and disablism, the latter meaning the exclusion of people with impairments (Goodley, 2017).

Future research should also embrace the importance of voice, as underlined in various critical theories. Voice refers to the perspectives of marginalized persons and privileging the experiential knowledge of 'outsiders within', meaning those with both expertise and experiential knowledge. The importance of voice resonates in the slogan "nothing about us without us", cited also by migration scholars (e.g. Kumar, 2016). Community advisory boards, for instance, are proposed to provide a mechanism for community consultation that contributes to protecting communities and conducting meaningful research (Quinn, 2004). The meaning of ethics should be understood in future research on migration and health as more than an ethical approval or informed consent. Instead, researchers should critically examine the various steps of the knowledge creation and knowledge translation continuum and strive to find ethically sound approaches within these processes (Pottie & Gabriel, 2014).

Last, joint effort in planning and funding public health research is needed also in the future. The Migrant Health and Wellbeing Study was coordinated by the National Institute for Health and Welfare (THL) in cooperation with a wide network of experts. The project was jointly funded by the European Social Fund (ESF), the Social Insurance Institution of Finland (KELA), and the Finnish Work Environment Fund. Using data from the Maamu Study, this study has provided a snapshot of the health of the studied populations at the time of the study. To continue to have an up-to-date picture of the health of diverse populations in Finland, future research and data collection efforts are needed. THL

founded a horizontal Expert Group for Multiculturalism (MONET) in 2016 to advocate migrant and ethnic minority health at the national level and provide expertise on migrant and ethnic minority health. The findings of this study highly support the need for such expertise and for its further development.

7.4.2 Policy implications

The high prevalence of mobility limitations and mental health symptoms calls for actions to promote the health of the studied population groups. Such health promotion entails several levels and the involvement of different actors. On the one hand, these actions should include primary prevention that aims to improve and sustain physical and mental health. For instance, ensuring the availability, accessibility and affordability of physical activity, healthy diet, and social participation is central. Numerous actors, including projects and associations, have long worked to promote the health and wellbeing of different groups in the population e.g. by providing tailored and low-threshold sports and cultural activities. Cooperation between the public sector and third sector actors is an essential part of this.

Reducing mobility limitations and mental health symptoms in the studied populations requires secondary and tertiary prevention as well. The findings of this study should be considered in the service system, and the availability, accessibility and affordability of health services should be ensured. The association between mental health symptoms and mobility limitation should be recognized in the service system, as persons with multiple health needs may have difficulties in seeking and receiving adequate care. Also perceived discrimination can be a barrier to receiving services and participating in activities that promote physical and mental health. Furthermore, the findings of this study demonstrate that specific health needs are not limited to populations with a refugee background. Instead of constructing separate services for populations that are considered vulnerable, the public welfare services should adjust to the increased diversity of the population in Finland, as previously suggested (Buchert, 2015). The ageing of recently settled populations in Finland needs to be recognized and prepared for in public welfare services. Services and interventions that are designed for "immigrants" should increasingly recognize the 'othering' and derogatory discourses related to the term, and re-examine whether underlining difference is necessary.

The importance of environmental factors cannot be emphasized enough. Functioning is the outcome of dynamic interactions between health conditions, environmental factors, and personal factors (World Health Organization, 2001). Therefore actions that aim to promote the health of the studied population groups should also address environmental factors, not only target the populations in concern. Most health inequalities across social groups reflect an unfair distribution of the underlying social determinants of health (Kawachi et al., 2002). Actions that are suggested to have the greatest impact on the social determinants of health and health inequities are found within early child development, employment, social protection, and the living environment (Saunders, Barr, McHale &

Hamelmann, 2017). Holistic interventions that advance integration, e.g. through fair employment and language training, are highly needed. Particular emphasis should be placed on the first years after migration, because, as this study shows, shorter time since migration and poor language proficiency increases the odds for mental health symptoms. The agency of recently settled persons themselves should be recognized and strengthened, particularly since the discussions on integration have primarily been led by different authorities, policy makers and municipal actors (Heikkilä, Kostiainen, Leinonen, Söderling, 2015). On the other hand, policy makers should recognize the link between migration policies and the health of recently settled populations, as demonstrated e.g. in the negative association between separation from primary family and mental health (Rask et al., 2016) or the relationship between integration policy models and self-rated health across Europe (Malmusi, 2015).

Finally, this study speaks for the need for anti-racism work and actions targeted towards the Finnish society. Recognizing and rejecting all forms of discrimination and racism should involve all of us (Alemanji, 2016). The lack of discrimination is not, however, the equivalent of positive intergroup relations (Mähönen, 2015). To build cities and societies that are more inclusive, fighting against discrimination and racism are needed, but also policies and practices that foster social cohesion and shared belonging (United Nations Educational, Scientific and Cultural Organization, 2010). While Finnish authorities, education providers and employers are required to promote equality by the Non-Discrimination Act, the civil society has had a particularly important role in promoting shared belonging. Recently the scope of health monitoring has also broadened to include the concept of sense of belonging (World Health Organization 2015). Supporting the wellbeing of diverse populations in Finland should include firmer advocating of shared belonging; understanding the importance of sense of belonging is at the core of understanding diversity and health.

8 Conclusions

This study was motivated by the growing diversity in Finland. It is the first Finnish dissertation to use survey data to examine the health of foreign-born populations. The aim of this study was to increase and improve knowledge on the health of three significant population groups in Finland. The study examined persons of Russian, Somali and Kurdish origin using data from the Migrant Health and Wellbeing Study. These groups comprise more than one fourth of the foreign-born population in Finland, and include persons with various reasons for migration.

Overall, this study illustrates several important findings on the health of the studied population groups. The sub-studies produce new information on mobility limitations, mental health symptoms and perceived discrimination in the studied population groups, on the association between mental health symptoms and mobility limitations, and on the association between discrimination and health. Mobility limitations were shown to be more prevalent among Somali and Kurdish origin populations compared to the general population in Finland. The prevalence of mental health symptoms was found to be higher among Russian origin women and Kurdish origin men and women than in the general population. Adjusting for sociodemographic factors showed some reductions in the increased odds for mobility limitations and mental health symptoms. Various factors, such as being unemployed, were associated with mobility limitations and mental health symptoms, and an association between mental health symptoms and mobility limitation was found in the studied groups. Perceived subtle discrimination was found to be more common than experiences of overt discrimination. Perceived discrimination was shown to increase the odds for poor self-reported health, limiting long-term illness or disability and mental health symptoms, also for those reporting subtle discrimination only.

There are uncertainties in the generalizability of these results beyond the Finnish context or to other populations within Finland. On the one hand, the findings of this study should not be used as the lens through which successive generations with transnational roots to Russia, Somalia, Iraq or Iran are viewed. On the other hand, the findings from this study are highly relevant for promoting the health and wellbeing of Russian, Somali and Kurdish origin populations in Finland, possibly beyond the generation examined in this study. The high prevalence of mobility limitations and mental health symptoms demonstrates the need for health promotion. These actions should involve different actors and address also environmental factors, not only target the populations in concern. Actions against discrimination and racism are highly needed, including initiatives that promote a sense of belonging. This study points to various avenues for future research, endorsing research that attempts exploring population health beyond the dichotomist frame of "us" and "them". Supporting the wellbeing of diverse populations in Finland needs firmer advocacy of shared belonging.

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References

Abdulrahim, S., James, S. A., Yamout, R. & Baker, W. (2012). Discrimination and psychological distress: Does Whiteness matter for Arab Americans? *Social Science & Medicine, 75*(12), 2116–2123.

Abebe, D. S., Lien, L. & Hjelde, K. H. (2014). What we know and don't know about mental health problems among immigrants in Norway. *Journal of Immigrant & Minority Health, 16*(1), 60–67.

Acevedo-Garcia, D., Sanchez-Vaznaugh, E. V., Viruell-Fuentes, E. A. & Almeida, J. (2012). Integrating social epidemiology into immigrant health research: a cross-national framework. *Social Science & Medicine, 75*(12), 2060–2068.

Adebayo, F. A., Itkonen, S. T., Koponen, P., Prättälä, R., Härkänen, T., Lamberg-Allardt, C. & Erkkola, M. (2017). Consumption of healthy foods and associated socio-demographic factors among Russian, Somali and Kurdish immigrants in Finland. *Scandinavian Journal of Public Health*, 45(3),277–287.

Afshari, R. & Bhopal, R. S. (2010). Ethnicity has overtaken race in medical science: MEDLINE-based comparison of trends in the USA and the rest of the world, 1965-2005. *International Journal of Epidemiology, 39*(6), 1682–1683.

Agyemang, C., Denktas, S., Bruijnzeels, M. & Foets, M. (2006). Validity of the single-item question on self-rated health status in first generation Turkish and Moroccans versus native Dutch in the Netherlands. *Public Health, 120*(6), 543–550.

Alemanji, A. A. (2016). *Is there such a thing...? A study of antiracism education in Finland (Doctoral dissertation)*. Helsinki: University of Helsinki.

Al-Hamzawi, A. O., Bruffaerts, R., Bromet, E. J., AlKhafaji, A. M. & Kessler, R. C. (2015). The Epidemiology of Major Depressive Episode in the Iraqi General Population. *PLoS One, 10*(7), doi:10.1371/journal.pone.0131937.

Ammann, B. (2005). Kurds in Germany. In M. Ember, C. R. Ember & I. Skoggard (Eds.) *Encyclopedia of Diasporas*. (pp. 1011–1019). New York: Springer US.

Anthias, F. (2001). The Concept of 'Social Division' and Theorising Social Stratification: Looking at Ethnicity and Class. *Sociology, 35*(4), 835–854.

Arango, J. (2000). Explaining migration: a critical view. *International Social Science Journal, 52*(165), 283–296.

Aroian, K. J., Khatutsky, G. & Dashevskaya, A. (2013). Chapter 24: People of Russian Heritage. In L. D. Purnell (Ed.) *Transcultural Health Care: A Culturally Competent Approach*. (4th ed.) (pp. 426–439). Philadelphia: F. A. Davis Company.

Aromaa, A., Heliövaara, M., Impivaara, O., Knekt, P., Maatela, J., Joukamaa, M.…Kallio, V. (1989). *Health, functional limitations and need for care in Finland. Basic results from the Mini-Finland Health Survey*. Helsinki: The Social Insurance Institution of Finland.

Aromaa, A. & Koskinen, S. (Eds.) (2004). *Health and Functional Capacity in Finland. Baseline Results of the Health 2000 Health Examination Survey*. Helsinki: National Public Health Institute.

Atun, R. A. (2005). The health crisis in Russia: Countries in the EU and G8 must help Russia tackle its health crisis. *BMJ, 331*(7530), 1418–1419.

Ayuso-Mateos, J. L., Nuevo, R., Verdes, E., Naidoo, N. & Chatterji, S. (2010). From depressive symptoms to depressive disorders: the relevance of thresholds. *British Journal of Psychiatry, 196*(5), 365–371.

Baron, S. & Linden, M. (2008). The role of the "International Classification of Functioning, Disability and Health, ICF" in the description and classification of mental disorders. *European Archives of Psychiatry & Clinical Neurosciences, 258*(5), 81–85.

Baron-Epel, O. & Kaplan, G. (2001). Self-reported health status of immigrants from the former Soviet Union in Israel. *Israel Medical Association Journal, 3*(12), 940–946.

Bastola, K., Koponen, P., Härkänen, T., Gissler, M. & Kinnunen, T. I. (2017). Pre-pregnancy body mass index and inter-pregnancy weight change among women of Russian, Somali and Kurdish origin and the general Finnish population. *Scandinavian Journal of Public Health, 45*(3), 314–321.

Bean, T., Derluyn, I., Eurelings-Bontekoe, E., Broekaert, E. & Spinhoven, P. (2007). Validation of the multiple language versions of the Hopkins Symptom Checklist-37 for refugee adolescents. *Adolescence, 42*(165), 51–71.

Bevelander, P., Bilde, R. H., Dahlstedt, I., Eskelund, M., Möller Hansen, L., Macura, M.…Ostby, L. (2013). *Scandinavia's Population Groups Originating from developing Countries: Change and Integration. Current Themes in IMER Research.* Malmö: Malmö University.

Bhopal, R. (1997). Is research into ethnicity and health racist, unsound, or important science? *BMJ, 314*(7096), 1751–1756.

Bhopal, R. S. (2013). *Migration, Ethnicity, Race, and Health in Multicultural Societies.* (2nd ed.). Oxford: Oxford University Press.

Bhopal, R. (2004). Glossary of terms relating to ethnicity and race: for reflection and debate. *Journal of Epidemiology & Community Health, 58*(6), 441–445.

Bhopal, R. S. (2017). Intertwining migration, ethnicity, racism, and health. *Lancet, 390*(10098), 932–6736.

Bhui, K. (2016). Brexit, social division and discrimination: impacts on mortality and mental illness? *British Journal of Psychiatry, 209*(2), 181–182.

Bhui, K., Abdi, A., Abdi, M., Pereira, S., Dualeh, M., Robertson, D.…Ismail, H. (2003). Traumatic events, migration characteristics and psychiatric symptoms among Somali refugees – preliminary communication. *Social Psychiatry & Psychiatric Epidemiology, 38*(1), 35–43.

Bhui, K., Craig, T., Mohamud, S., Warfa, N., Stansfeld, S. A., Thornicroft, G.…McCrone, P. (2006). Mental disorders among Somali refugees: developing culturally appropriate measures and assessing socio-cultural risk factors. *Social Psychiatry & Psychiatric Epidemiology, 41*(5), 400–408.

Blomstedt, Y.; Johansson, S.E.; Sundquist, J. (2007). Mental health of immigrants from the former Soviet Bloc: a future problem for primary health care in the enlarged European Union? A cross-sectional study. *BMC Public Health 7*(27). doi:10.1186/1471-2458-7-27

Bogic, M., Njoku, A. & Priebe, S. (2015). Long-term mental health of war-refugees: a systematic literature review. *BMC International Health and Human Rights, 15*(29). doi:10.1186/s12914-015-0064-9.

Bostean, G. (2013). Does Selective Migration Explain the Hispanic Paradox?: A Comparative Analysis of Mexicans in the U.S. and Mexico. *Journal of Immigrant & Minority Health, 15*(3), 624–635.

Bowleg, L. (2012). The problem with the phrase women and minorities: intersectionality-an important theoretical framework for public health. *American Journal of Public Health, 102*(7), 1267–1273.

Bradley, L. & Tawfiq, N. (2006). The physical and psychological effects of torture in Kurds seeking asylum in the United Kingdom. *Torture, 16*(1), 41–47.

Braun, M. & Mohler, P. P. (2003). Chapter 7: Background variables. In J. A. Harkness, Van de Vijver, Fons J.R. & P. P. Mohler (Eds.) *Cross-Cultural Survey Methods. Wiley Series in Survey Methodology* (pp. 101–115). New Jersey: Wiley.

Braveman, P. & Gottlieb, L. (2014). The social determinants of health: it's time to consider the causes of the causes. *Public Health Reports, 129*(2), 19–31.

Braveman, P. A., Cubbin, C., Egerter, S., Chideya, S., Marchi, K. S., Metzler, M. & Posner, S. (2005). Socioeconomic status in health research: one size does not fit all. *JAMA, 294*(22), 2879–2888.

Brubaker, R. (2009). Ethnicity, Race, and Nationalism. *Annual Review of Sociology, 35*, 21–42.

Brubaker, R. (2002). Ethnicity without groups. *Archives of European Sociology, 2*, 163–189.

Buchert, U. (2015). *Maahanmuuttajuuden institutionaaliset kategoriat (Doctoral dissertation). Kuntoutussäätiön tutkimuksia 87*. Helsinki: Kuntoutussäätiö.

Buchert, U. & Rask, S. (2017). Maahanmuutto ja väestön moninaistuminen suomalaisessa terveys- ja hyvinvointitutkimuksessa. *Proceedings from "Race, Power and Mobilities": 14th ETMU Days*.

Carrasquillo, O., Lantigua, R. A. & Shea, S. (2000). Differences in functional status of Hispanic versus non-Hispanic White elders: data from the Medical Expenditure Panel Survey. *Journal of Aging & Health, 12*(3), 342–361.

Castaneda, A., Junna, L., Lilja, E., Skogberg, N., Kuusio, H., Mäki-Opas, J….Suvisaari, J. (2017). The Prevalence of Potentially Traumatic Pre-Migration Experiences: A Population- Based Study of Russian, Somali and Kurdish Origin Migrants in Finland. *Journal of Traumatic Stress Disorders & Treatment, 6*(1). doi: 10.4172/2324-8947.1000165.

Castaneda, A., Rask, S., Koponen, P., Mölsä, M. & Koskinen, S. (Eds.) (2012). *Migrant Health and Wellbeing. A study on persons of Russian, Somali and Kurdish origin in Finland*. Report 61 (in Finnish, English abstract). Helsinki: National Institute for Health and Welfare (THL).

Castaneda, A., Rask, S., Koponen, P., Suvisaari, J., Koskinen, S., Härkänen, T….Jasinskaja-Lahti, I. (2015). The association between discrimination and psychological and social well-being: a population-based study of Russian, Somali and Kurdish migrants in Finland. *Psychology & Developing Societies, 27*(2), 270–292.

Castles, M., de Haas, H. & Miller, M. J. (2014a). *The Age of Migration. International Population Movements in the Modern World*. (5th ed.). New York: Guilford Press.

Castles, M., de Haas, H. & Miller, M. J. (2014b). Theories of Migration. In M. Castles, H. de Haas & M. J. Miller (Eds.) *The Age of Migration. International Population Movements in the Modern World*. (5th ed.) (pp. 25–54). New York: Guilford Press.

Castles, S. (2003). Towards a Sociology of Forced Migration and Social Transformation. *Sociology, 37*(1), 13–34.

Central Intelligence Agency. (2013). The World Factbook.

Clark, L. & Hofsess, L. (1998). Acculturation. In S. Loue (Ed.) *Handbook of Immigrant Health*. (pp. 37–59). New York: Plenum Press.

Close, C., Kouvonen, A., Bosqui, T., Patel, K., O'Reilly, D. & Donnelly, M. (2016). The mental health and wellbeing of first generation migrants: a systematic-narrative review of reviews. *Global Health, 12*(1), doi:10.1177/1403494817726620

Coleman, D. (2008). The demographic effects of international migration in Europe. *Oxford Review of Economic Policy, 24*(3), 452–476.

Collins English Dictionary (2012). Diversity. Digital Edition. Retrieved August 21, 2017, from http://www.dictionary.com/browse/diversity

Constant, A. F., Garcia-Munoz, T., Neuman, S. & Neuman, T. (2017). A "healthy immigrant effect" or a "sick immigrant effect"? Selection and policies matter. *European Journal of Health Economics*, 1(19). doi:10.1007/s10198-017-0870-1.

Constant, A. F., Gataullina, L. & Zimmermann, K. F. (2009). Ethnosizing immigrants. *Journal of Economic Behavior & Organization, 69*(3), 274–287.

Croezen, S., Burdorf, A. & van Lenthe, F. J. (2016). Self-perceived health in older Europeans: Does the choice of survey matter? *European Journal of Public Health, 26*(4), 686–692.

CSDH. (2008). *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health*. Geneva: World Health Organization.

Csuka, M. & McCarty, D. J. (1985). Simple method for measurement of lower extremity muscle strength. *American Journal of Medicine, 78*(1), 77–81.

Dallo, F. J., Booza, J. & Nguyen, N. D. (2015). Functional limitations and nativity status among older Arab, Asian, black, Hispanic, and white Americans. *Journal of Immigrant & Minority Health, 17*(2), 535–542.

Daryani, A., Berglund, L., Andersson, A., Kocturk, T., Becker, W. & Vessby, B. (2005). Risk factors for coronary heart disease among immigrant women from Iran and Turkey, compared to women of Swedish ethnicity. *Ethnicity & Disease, 15*(2), 213–220.

Davidson, G. R., Murray, K. E. & Schweitzer, R. D. (2010). Review of Refugee Mental Health Assessment: Best Practices and Recommendations. *Journal of Pacific Rim Psychology, 4*(1), 72–85.

de Wit, M. A., Tuinebreijer, W. C., Dekker, J., Beekman, A. J., Gorissen, W. H., Schrier, A. C.…Verhoeff, A. P. (2008). Depressive and anxiety disorders in different ethnic groups: a population based study among native Dutch, and Turkish, Moroccan and Surinamese migrants in Amsterdam. *Social Psychiatry & Psychiatric Epidemiology, 43*(11), 905–912.

Derogatis, L. R., Lipman, R. S. & Covi, L. (1973). SCL-90: an outpatient psychiatric rating scale – preliminary report. *Psychopharmacological Bulletin, 9*(1), 13–28.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H. & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): a self-report symptom inventory. *Behavioral Sciences, 19*(1), 1–15.

Devlin, J. T., Dhalac, D., Suldan, A. A., Jacobs, A., Guled, K. & Bankole, K. A. (2012). Determinants of physical activity among Somali women living in Maine. *Journal of Immigrant & Minority Health, 14*(2), 300–306.

Diaz, E., Thulesius, H. & Razum, O. (2016). Shifting migrant health care away from an agenda of conflicts and problems toward solutions. *Scandinavian Journal of Primary Health Care, 34*(3), 213–214.

Dinesen, C., Nielsen, S. S., Mortensen, L. H. & Krasnik, A. (2011). Inequality in self-rated health among immigrants, their descendants and ethnic Danes: examining the role of socioeconomic position. *International Journal of Public Health, 56*(5), 503–514.

Dobusch, L. (2017). Diversity discourses and the articulation of discrimination: the case of public organisations. *Journal of Ethnic and Migration Studies, 43*(10), 1644–1661.

Draguns, J. G. & Tanaka-Matsumi, J. (2003). Assessment of psychopathology across and within cultures: issues and findings. *Behaviour Research & Therapy, 41*(7), 755–776.

Dunn, J. R. & Hayes, M. V. (1999). Toward a lexicon of population health. *Canadian Journal of Public Health, 90*(1), S7–10.

Edberg, M., Cleary, S. & Vyas, A. (2011). A trajectory model for understanding and assessing health disparities in immigrant/refugee communities. *Journal of Immigrant & Minority Health, 13*(3), 576–584.

Edwards, A. (2016). UNHCR viewpoint: "refugee" or "migrant" – which is right? Retrieved March 20, 2017, from http://www.unhcr.org/55df0e556.html

Ellis, B. H., MacDonald, H. Z., Lincoln, A. K. & Cabral, H. J. (2008). Mental health of Somali adolescent refugees: the role of trauma, stress, and perceived discrimination. *Journal of Consulting & Clinical Psychology, 76*(2), 184–193.

Elo, I. T. (2009). Social Class Differentials in Health and Mortality: Patterns and Explanations in Comparative Perspective. *Annual Review of Sociology, 35*, 553–572.

Elo, I. T., Mehta, N. K. & Huang, C. (2011). Disability among native-born and foreign-born blacks in the United States. *Demography, 48*(1), 241–265.

Elrick, J. & Farah Schwartzman, L. (2015). From statistical category to social category: organized politics and official categorizations of 'persons with a migration background' in Germany. *Ethnic & Racial Studies, 38*(9), 1539–1556.

European Union Agency for Fundamental Rights. (2009). *European Union Minorities and Discrimination Survey: Main Results Report (EU-MIDIS)*. Vienna: European Union Agency for Fundamental Rights.

Fazel, M., Wheeler, J. & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *Lancet, 365*(9467), 1309–1314.

Fennely, K. (2005). The 'Healthy Migrant' Effect. *Healthy Generations, 5*, 1–4.

Ferrer, M., Lamarca, R., Orfila, F. & Alonso, J. (1999). Comparison of performance-based and self-rated functional capacity in Spanish elderly. *American Journal of Epidemiology, 149*(3), 228–235.

Finnish Immigration Service. (2016). The number of Ingrian Finnish returnees approximately 30,000 – well over 300 applications still expected to arrive. Retrieved March 16, 2017, from http://www.migri.fi/for_the_media/bulletins/press_releases/press_releases/1/0/the_number_of_ingrian_finnish_returnees_approximately_30_000_well_over_300_applications_still_expected_to_arrive_67538

Finnish Immigration Service. (2017a). Statistics on asylum and refugees. Retrieved March 16, 2017, from http://www.migri.fi/about_us/statistics/statistics_on_asylum_and_refugees

Finnish Immigration Service. (2017b). Statistics. Retrieved October 31, 2017, from http://tilastot.migri.fi/#applications

Fischbacher, C. M., Cezard, G., Bhopal, R. S., Pearce, J., Bansal, N. & Scottish Health and Ethnicity Linkage Study. (2014). Measures of socioeconomic position are not consistently associated with ethnic differences in cardiovascular disease in Scotland: methods from the Scottish Health and Ethnicity Linkage Study (SHELS). *International Journal of Epidemiology, 43*(1), 129–139.

Ford, C. & Airhihenbuwa, C. (2010a). Critical race theory, race equity, and public health: toward antiracism praxis. *American Journal of Public Health, 100*(1), S30–35.

Ford, C. L. & Airhihenbuwa, C. O. (2010b). The public health critical race methodology: Praxis for antiracism research. *Social Science & Medicine, 71*(8), 1390–1398.

Ford, C. L. & Harawa, N. T. (2010). A new conceptualization of ethnicity for social epidemiologic and health equity research. *Social Science & Medicine, 71*(2), 251–258.

Fox, J. E., Moroşanu, L. & Szilassy, E. (2015). Denying Discrimination: Status, 'Race', and the Whitening of Britain's New Europeans. *Journal of Ethnic and Migration Studies, 41*(5), 729–748.

Friis, R., Yngve, A. & Persson, V. (1998). Review of social epidemiologic research on migrants' health: findings, methodological cautions, and theoretical perspectives. *Scandinavian Journal of Social Medicine, 26*(3), 173–180.

Gee, G. C. (2002). A multilevel analysis of the relationship between institutional and individual racial discrimination and health status. *American Journal of Public Health, 92*(4), 615–623.

Gele, A. A. & Mbalilaki, A. J. (2013). Overweight and obesity among African immigrants in Oslo. *BMC Res.Notes, 6*(119). doi: 10.1186/1756-0500-6-119.

Gele, A. A., Pettersen, K. S., Torheim, L. E. & Kumar, B. (2016). Health literacy: the missing link in improving the health of Somali immigrant women in Oslo. *BMC Public Health, 16*(1), doi: 10.1186/s12889-016-3790-6.

Gerritsen, A. A., Bramsen, I., Deville, W., van Willigen, L. H., Hovens, J. E. & van der Ploeg, H. M. (2006). Physical and mental health of Afghan, Iranian and Somali asylum seekers and refugees living in the Netherlands. *Social Psychiatry & Psychiatric Epidemiology, 41*(1), 18–26.

Gilliver, S. C., Sundquist, J., Li, X. & Sundquist, K. (2014). Recent research on the mental health of immigrants to Sweden: a literature review. *European Journal of Public Health, 24*(1), 72–79.

Glick-Schiller, N. & Caglar, A. (2009). Towards a Comparative Theory of Locality in Migration Studies: Migrant Incorporation and City Scale. *Journal of Ethnicity & Migration Studies, 35*(2), 177–202.

Goodley, D. (2017). *Disability Studies: An Interdisciplinary Introduction*. (2nd ed.). London: SAGE.

Graham, L., Brown-Jeffy, S., Aronson, R. & Stephens, C. (2011). Critical race theory as theoretical framework and analysis tool for population health research. *Critical Public Health, 21*(1), 81–93.

Graubard, B. I. & Korn, E. L. (1999). Predictive Margins with Survey Data. *Biometrics, 55*(2), 652–659.

Guralnik, J. M., Ferrucci, L., Simonsick, E. M., Salive, M. E. & Wallace, R. B. (1995). Lower-extremity function in persons over the age of 70 years as a predictor of subsequent disability. *New England Journal of Medicine, 332*(9), 556–561.

Haas, S., Krueger, P. & Rohlfsen, L. (2012). Race/Ethnic and Nativity Disparities in Later Life Physical Performance: The Role of Health and Socioeconomic Status Over the Life Course. *Journals of Gerontology: Psychological Sciences & Social Sciences, 67*(2), 238–248.

Hannigan, A., O'Donnell, P., O'Keeffe, M. & MacFarlane, A. (2016). *How do Variations in Definitions of "Migrant" and their Application Influence the Access of Migrants to Health Care Services?* Geneva: World Health Organization.

Hardy, S. E., Kang, Y., Studenski, S. A. & Degenholtz, H. B. (2011). Ability to walk 1/4 mile predicts subsequent disability, mortality, and health care costs. *Journal of Genenral Internal Medicine, 26*(2), 130–135.

Hatch, S. L., Gazard, B., Williams, D. R., Frissa, S., Goodwin, L., SELCoH Study Team & Hotopf, M. (2016). Discrimination and common mental disorder among migrant and ethnic groups: findings from a South East London Community sample. *Social Psychiatry & Psychiatric Epidemiology, 51*(5), 689–701.

Heikkilä, E., Kostiainen, A., Leinonen, J., Söderling, I. (Eds.) (2015) *Participation, Integration, and Recognition: Changing Pathways to Immigrant Incorporation.* Turku: Institute of Migration.

Heikkilä, E. & Pikkarainen, A. (2008). *Internationalization of Population and Labour Force from the Present to the Future.* Turku: Institute of Migration.

Hirvensalo, M., Rantanen, T. & Heikkinen, E. (2000). Mobility difficulties and physical activity as predictors of mortality and loss of independence in the community-living older population. *Journal of the American Geriatrics Society, 48*(5), 493–498.

Hirvensalo, M., Sakari-Rantala, R., Kallinen, M., Leinonen, R., Lintunen, T. & Rantanen, T. (2007). Underlying factors in the association between depressed mood and mobility limitation in older people. *Gerontology, 53*(3), 173–178.

Hollander, A. C. (2013). Social inequalities in mental health and mortality among refugees and other immigrants to Sweden – epidemiological studies of register data. *Global Health Action, 6*, doi: 10.3402/gha.v6i0.21059.

Hollifield, M., Warner, T. D., Lian, N., Krakow, B., Jenkins, J. H., Kesler, J.…Westermeyer, J. (2002). Measuring trauma and health status in refugees: a critical review. *JAMA, 288*(5), 611–621.

Holmgren, M., Lindgren, A., de Munter, J., Rasmussen, F. & Ahlstrom, G. (2014). Impacts of mobility disability and high and increasing body mass index on health-related quality of life and participation in society: a population-based cohort study from Sweden. *BMC Public Health, 14*, doi:10.1186/1471-2458-14-381.

Huang, C., Mehta, N. K., Elo, I. T., Cunningham, S. A., Stephenson, R., Williamson, D. F. & Narayan, K. M. (2011). Region of Birth and Disability Among Recent U.S. Immigrants: Evidence from the 2000 Census. *Population Research & Policy Review, 30*(3), 399–418.

Hunt, L. M., Schneider, S. & Comer, B. (2004). Should "acculturation" be a variable in health research? A critical review of research on US Hispanics. *Social Science & Medicine, 59*(5), 973–986.

Idehen, E. E., Korhonen, T., Castaneda, A., Juntunen, T., Kangasniemi, M., Pietila, A. M. & Koponen, P. (2017). Factors associated with cervical cancer screening participation among immigrants of Russian, Somali and Kurdish origin: a population-based study in Finland. *BMC Womens Health, 17*(1), doi: 10.1186/s12905-017-0375-1.

Idler, E. L. & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *Journal of Health Social Behavior, 38*(1), 21–37.

Iezzoni, L. I., McCarthy, E. P., Davis, R. B. & Siebens, H. (2001). Mobility difficulties are not only a problem of old age. *Journal of General Internal Medicine, 16*(4), 235–243.

Ikram, U. Z., Mackenbach, J. P., Harding, S., Rey, G., Bhopal, R. S., Regidor, E.…Kunst, A. E. (2016). All-cause and cause-specific mortality of different migrant populations in Europe. *European Journal of Epidemiology., 31*(7), 655–665.

Institute for Health Metrics and Evaluation (2016). Country profiles. Retrieved March 15, 2017, from http://www.healthdata.org/results/country-profiles

International Organization for Migration. (2011). Glossary on Migration, International Migration Law Series No. 25.

Jaakkola, M. (2005). *Suomalaisten suhtautuminen maahanmuuttajiin vuosina 1987–2003*. Helsinki, Finland: Ministry of Labour.

Jaakkola, M. (2009). *Maahanmuuttajat suomalaisten näkökulmasta: Asennemuutokset 1987–2007*. Helsinki, Finland: City of Helsinki Information Centre.

Jasso, G., Massey, D. S., Rosenzweig, R. S. & Smith, J. P. (2004). Immigrant health, selectivity and acculturation. In N. B. Anderson, R. A. Bulatao & B. Cohen (Eds.) *Critical perspectives on racial and ethnic differences in health in late life*. (pp. 227–266). Washington, DC: National Academic Press.

Johnson, T. P. & Van de Vijver, Fons J.R. (2003). Social Desirability in Cross-Cultural Research. In J. A. Harkness, Van de Vijver, Fons J.R. & P. P. Mohler (Eds.) *Cross-Cultural Survey Methods. Wiley Series in Survey Methodology*. (pp. 195–204). New Jersey: John Wiley & Sons.

Jones, C. P. (2001). Invited Commentary: "Race", Racism, and the Practice of Epidemiology. *American Journal of Epidemiology, 154*(4), 299–304.

Jørgensen, U., Melchiorsen, H., Gottlieb, A. G., Hallas, V. & Nielsen, C. V. (2010). Using the International Classification of Functioning, Disability and Health (ICF) to describe the functioning of traumatised refugees. *Torture, 20*(2), 57–75.

Jyväsjärvi, S., Joukamaa, M., Vaisanen, E., Larivaara, P., Kivela, S. & Keinanen-Kiukaanniemi, S. (2001). Somatizing frequent attenders in primary health care. *Journal of Psychosomatic Research, 50*(4), 185–192.

Kalliokoski, P., Bergqvist, Y. & Lofvander, M. (2013). Physical performance and 25-hydroxyvitamin D: a cross-sectional study of pregnant Swedish and Somali immigrant women and new mothers. *BMC Pregnancy Childbirth, 13*, doi:10.1186/1471-2393-13-237.

Kamenov, K., Caballero, F. F., Miret, M., Leonardi, M., Sainio, P., Tobiasz-Adamczyk, B.…Cabello, M. (2016). Which Are the Most Burdensome Functioning Areas in Depression? A Cross-National Study. *Frontiers in Psychology, 7*, doi:10.3389/fpsyg.2016.01342.

Kapfhammer, H. -. (2006). Somatic symptoms in depression. *Dialogues in Clinical Neuroscience, 8*(2), 227–239.

Karasz, A. (2005). Cultural differences in conceptual models of depression. *Social Science & Medicine, 60*(7), 1625–1635.

Karlsen, S., Nazroo, J. Y., McKenzie, K., Bhui, K. & Weich, S. (2005). Racism, psychosis and common mental disorder among ethnic minority groups in England. *Psychological Medicine, 35*(12), 1795–1803.

Kawachi, I., Subramanian, S. V. & Almeida-Filho, N. (2002). A glossary for health inequalities. *Journal of Epidemiology & Community Health, 56*(9), 647–652.

Kemppainen, L., Kemppainen, T., Skogberg, N., Kuusio, H. & Koponen, P. (2017). Immigrants' use of health care in their country of origin: the role of social integration, discrimination and the parallel use of health care systems. *Scandinavian Journal of Caring Sciences,* doi:10.1111/scs.12499.

Keskinen, S. (2014). Re-constructing the peaceful nation: negotiating meanings of whiteness, immigration and Islam after a shopping mall shooting. *Social Identities, 20*(6), 471–485.

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R. & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 617–627.

Kindig, D. & Stoddart, G. (2003). What Is Population Health? *American Journal of Public Health, 93*(3), 380–383.

Kinnunen, T. I., Skogberg, N., Härkänen, T., Lundqvist, A., Laatikainen, T. & Koponen, P. (2017). Overweight and abdominal obesity in women of childbearing age of Russian, Somali and Kurdish origin and the general Finnish population. *Journal of Public Health*, doi:10.1093/pubmed/fdx053.

Kirkham, S. R. & Anderson, J. M. (2002). Postcolonial nursing scholarship: from epistemology to method. *Advances in Nursing Science, 25*(1), 1–17.

Koochek A, Johansson SE, Kocturk TO, Sundquist J & Sundquist K. (2008). Physical activity and body mass index in elderly Iranians in Sweden: a population-based study. *European Journal of Clinical Nutrition, 62*(11), 1326–1332.

Koskinen, S., Lundqvist, A. & Ristiluoma, N. (Eds.) (2012). *Health, functional capacity and welfare in Finland in 2011. Report 68*. Helsinki: National Institute for Health and Welfare (THL).

Koster, A., Penninx, B. W., Newman, A. B., Visser, M., van Gool, C. H., Harris, T. B.…Kritchevsky, S. B. (2007). Lifestyle factors and incident mobility limitation in obese and non-obese older adults. *Obesity, 15*(12), 3122–3132.

Koukkula, M., Keskimaki, I., Koponen, P., Mölsä, M. & Klemetti, R. (2016). Female Genital Mutilation/Cutting among Women of Somali and Kurdish Origin in Finland. *Birth, 43*(3), 240–246.

Krasnik, A. (2015). Categorizations of migrants and ethnic minorities – are they useful for decisions on public health interventions? *European Journal of Public Health, 25*(6), 907.

Krieger, N. (2014). Got Theory? On the 21st c. CE Rise of Explicit use of Epidemiologic Theories of Disease Distribution: A Review and Ecosocial Analysis. *Current Epidemiology Reports, 1*(45). doi:doi:10.1007/s40471-013-0001-1.

Krieger, N. (2012a). Who and What Is a "Population"? Historical Debates, Current Controversies, and Implications for Understanding "Population Health" and Rectifying Health Inequities. *Milbank Quarterly, 90*(4), 63–-681.

Krieger, N. (2012b). Methods for the scientific study of discrimination and health: an ecosocial approach. *American Journal of Public Health, 102*(5), 936–944.

Krieger, N. (2001a). A glossary for social epidemiology. *Journal of Epidemiology & Community Health, 55*(10), 693–700.

Krieger, N. (2001b). Theories for social epidemiology in the 21st century: an ecosocial perspective. *International Journal of Epidemiology, 30*(4), 668–677.

Krieger, N. (2000). Discrimination and Health. In L. F. Berkman & I. Kawachi (Eds.) *Social Epidemiology*. (pp. 36–75). Oxford: Oxford University Press.

Krieger, N. (1999). Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *International Journal of Health Services, 29*(2), 295–352.

Krieger, N., Smith, K., Naishadham, D., Hartman, C. & Barbeau, E. M. (2005). Experiences of discrimination: Validity and reliability of a self-report measure for population health research on racism and health. *Social Science & Medicine, 61*(7), 1576–1596.

Krueger, R. F. (1999). The Structure of Common Mental Disorders. *Archives of General Psychiatry, 10*(56), 921–926.

Kuittinen, S., Punamäki, R-L, Mölsä, M., Saarni, S., Tiilikainen, M. & Honkasalo, M. (2014). Depressive Symptoms and Their Psychosocial Correlates Among Older

Somali Refugees and Native Finns. *Journal of Cross-Cultural Psychology, 45*(9), 1434–1452.

Kuittinen, S., Mölsä, M., Punamäki, R-L., Tiilikainen, M. & Honkasalo, M. L. (2017a). Causal attributions of mental health problems and depressive symptoms among older Somali refugees in Finland. *Transcultural Psychiatry, 54*(2), 211–238.

Kuittinen, S., García Velázquez, R., Castaneda, A. E., Punamäki, R-L, Rask, S. & Suvisaari, J. (2017b). Construct validity of the HSCL-25 and SCL-90-Somatization scales among Russian, Somali and Kurdish origin migrants in Finland. *International Journal of Culture and Mental Health, 10*(1), 1–18.

Kumar, B. (2016). Inequalities in Health – the Issue of Migration [Video file]. WONCA Europe Conference 15–18.6.2016. Retrieved October 5, 2017 from https://www.youtube.com/watch?v=4bwrieVXLOI

Lahelma, E., Pietiläinen, O., Rahkonen, O. & Lalluka, T. (2015). Common mental disorders and cause-specific disability retirement. *Occupational & Environmental Medicine, 72*, 181–187.

Lee, E. O. & Brotman, S. (2011). Identity, refugeeness, belonging: experiences of sexual minority refugees in Canada. *Canadian Review of Sociology, 48*(3), 241–274.

Lee, H. & Turney, K. (2012). Investigating the Relationship between Perceived Discrimination, Social Status, and Mental Health. *Society & Mental Health, 2*(1), 1–20.

Lehti, V., Gissler, M., Markkula, N. & Suvisaari, J. (2017). Mortality and causes of death among the migrant population of Finland in 2011-13. *European Journal of Public Health, 27*(1), 117–123.

Lehtonen, R. & Pahkinen, E. (2004). *Practical methods for design and analysis of complex surveys. Revised*. (2nd ed.). Chichester: John Wiley & Sons.

Lenze, E. J., Rogers, J. C., Martire, L. M., Mulsant, B. H., Rollman, B. L., Dew, M. A.…Reynolds, C. F.,3rd. (2001). The association of late-life depression and anxiety with physical disability: a review of the literature and prospectus for future research. *American Journal of Geriatric Psychiatry, 9*(2), 113–135.

Lert, F., Melchior, M. & Ville, I. (2007). Functional limitations and overweight among migrants in the Histoire de Vie study (Insee, 2003). *Revue d'Epidémiologie & de Santé Publique, 55*(6), 391–400.

Levecque, K. & Van Rossem, R. (2015). Depression in Europe: does migrant integration have mental health payoffs? A cross-national comparison of 20 European countries. *Ethnicty & Health, 20*(1), 49–65.

Liebkind, K., Larja, L. & Brylka, A. A. (2016). Ethnic and gender discrimination in recruitment: experimental evidence from Finland. *Journal of Social and Political Psychology, 4*(1), 403–426.

Liebkind, K. & Jasinskaja-Lahti, I. (2000). The influence of experiences of discrimination on psychological stress: A comparison of seven immigrant groups. *Journal of Community & Applied Social Psychology, 10*(1), 1–16.

Lindencrona, F., Ekblad, S. & Hauff, E. (2008). Mental health of recently resettled refugees from the Middle East in Sweden: the impact of pre-resettlement trauma, resettlement stress and capacity to handle stress. *Social Psychiatry & Psychiatric Epidemiology, 43*(2), 121–131.

Lindert, J., Ehrenstein, O. S., Priebe, S., Mielck, A. & Brahler, E. (2009). Depression and anxiety in labor migrants and refugees – a systematic review and meta-analysis. *Social Science & Medicine, 69*(2), 246–257.

Lindström, M. & Sundquist, K. (2005). The impact of country of birth and time in Sweden on overweight and obesity: a population-based study. *Scandinavian Journal of Public Health, 33*(4), 276–284.

Lindström, M., Sundquist, J. & Östergren, P. (2001). Ethnic differences in self reported health in Malmö in southern Sweden. *Journal of Epidemiology & Community Health, 55*, 97–103.

Lommel, L. L. & Chen, J. L. (2016). The Relationship Between Self-Rated Health and Acculturation in Hispanic and Asian Adult Immigrants: A Systematic Review. *Journal of Immigrant & Minority Health, 18*(2), 468–478.

Lyytikäinen, L. & Kemppainen, T. (2016). Regional inequalities in self-rated health in Russia: What is the role of social and economic capital? *Social Science & Medicine, 161*, 92–99.

Mahmoud, N. J. (2013). *Twisting identity and belonging beyond dichotomies. The case of second generation female migrants in Norway.* Münster: LIT Verlag.

Malmusi, D., Borrell, C. & Benach, J. (2010). Migration-related health inequalities: Showing the complex interactions between gender, social class and place of origin. *Social Science & Medicine, 71*(9), 1610–1619.

Malmusi, D. (2015). Immigrants' health and health inequality by type of integration policies in European countries. *European Journal of Public Health, 25*(2), 293–299.

Markkula, N., Lehti, V., Gissler, M. & Suvisaari, J. (2017). Incidence and prevalence of mental disorders among immigrants and native Finns: a register-based study. *Social Psychiatry & Psychiatric Epidemiology*. doi:10.1007/s00127-017-1432-7

Marmot, M. (2004). *The Status Syndrome: How Social Standing Affects Our Health and Longevity.* New York: Owl Books.

Marmot, M. & Wilkinson, R. G. (Eds.) (2006). *Social Determinants of Health.* (2nd ed.). New York: Oxford University Press.

Marmot, M. (2016). Society and health of migrants. *European Journal of Epidemiology, 31*(7), 639–641.

Marsella, A. J. (2003). Cultural Aspects of Depressive Experience and Disorders. *Online Readings in Psychology and Culture, 10*(2). doi:10.9707/2307-0919.1081.

Masmas, T. N., Moller, E., Buhmannr, C., Bunch, V., Jensen, J. H., Hansen, T. N.…Ekstrom, M. (2008). Asylum seekers in Denmark – a study of health status and grade of traumatization of newly arrived asylum seekers. *Torture, 18*(2), 77–86.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A. & Taylor, J. E. (1993). Theories of International Migration: A Review and Appraisal. *Population and Development Review, 19*(3), 431–466.

McWhinnie, J. R. (1981). Disability assessment in population surveys: results of the OECD. Common Development Effort. *Revue d'Epidémiologie & de Santé Publique, 29*, 413–419.

Mechakra-Tahiri, S. D., Freeman, E. E., Haddad, S., Samson, E. & Zunzunegui, M. V. (2012). The gender gap in mobility: a global cross-sectional study. *BMC Public Health, 12*(598). doi:10.1186/1471-2458-12-598.

Mehta, N. K. & Elo, I. T. (2012). Migrant selection and the health of U.S. immigrants from the former Soviet Union. *Demography, 49*(2), 425–447.

Merriam-Webster. Diversity. Digital Edition. Retrieved August 21, 2017, from https://www.merriam-webster.com/dictionary/diversity

Metz, H. C. (Ed.) (1993). *Somalia: a country study.* (4th ed.). Washington, D.C.: Federal Research Division, Library of Congress.

Miller, A. M. & Chandler, P. J. (2002). Acculturation, resilience, and depression in midlife women from the former Soviet Union. *Nursing Research, 51*(1), 26–32.

Miller, A. M. & Gross, R. (2004). Health and depression in women from the former Soviet Union living in the United States and Israel. *Journal of Immigrant Health, 6*(4), 187–196.

Miller, A. M., Sorokin, O. & Fogg, L. (2013). Individual, family, social, and cultural predictors of depressed mood in former Soviet immigrant couples. *Research in Nursing & Health, 36*(3), 271–283.

Miller, A. M., Sorokin, O., Wang, E., Feetham, S., Choi, M. & Wilbur, J. (2006). Acculturation, social alienation, and depressed mood in midlife women from the former Soviet Union. *Research in Nursing & Health, 29*(2), 134–146.

Ministry of the Interior. (2009). *Act on the Integration of Immigrants and Reception of Asylum Seekers*.

Ministry of the Interior. (2017a). Migration and asylum policy. Retrieved September 3, 2017, from http://intermin.fi/en/migration/migration-and-asylum-policy

Ministry of the Interior. (2017b). Quota refugees. Retrieved September 3, 2017, from http://intermin.fi/en/migration/refugees-and-asylum-seekers/quota-refugees

Mirsky, J. (2009). Mental health implications of migration: a review of mental health community studies on Russian-speaking immigrants in Israel. *Social Psychiatry & Psychiatric Epidemiology, 44*(3), 179–187.

Mirsky, J., Kohn, R., Levav, I., Grinshpoon, A. & Ponizovsky, A. M. (2008). Psychological distress and common mental disorders among immigrants: results from the Israeli-based component of the World Mental Health Survey. *Journal of Clinical Psychiatry, 69*(11), 1715–1720.

Mirza, M. & Heinemann, A. W. (2012). Service needs and service gaps among refugees with disabilities resettled in the United States. *Disability & Rehabilitation, 34*(7), 542–552.

Missinne, S. & Bracke, P. (2012). Depressive symptoms among immigrants and ethnic minorities: a population based study in 23 European countries. *Social Psychiatry & Psychiatric Epidemiology, 47*(1), 97–109.

Miszkurka, M., Zunzunegui, M. V., Langlois, E. V., Freeman, E. E., Kouanda, S. & Haddad, S. (2012). Gender differences in mobility disability during young, middle and older age in West African adults. *Global Public Health, 7*(5), 495–508.

Mofidi, N., Ghazinour, M., Araste, M., Jacobsson, L. & Richter, J. (2008). General mental health, quality of life and suicide-related attitudes among Kurdish people in Iran. *International Journal of Social Psychiatry, 54*(5), 457–468.

Mosallanezhad Z, Hörder H, Salavati M, Nilsson-Wikmar L & Frändin K. (2012). Physical activity and physical functioning in Swedish and Iranian 75-year-olds – a comparison. *Archives of Gerontology & Geriatrics, 55*(2), 422–430.

Myrskylä, P. & Pyykkönen, T. (2014). *Suomeen muuttaneiden naisten ja miesten työmarkkinatilanne, koulutus ja poliittinen osallistuminen. Working Papers 2/2014*. Helsinki: Tilastokeskus.

Mähönen, T. A. (2015). Predicting immigrant integration: Common denominators and individual trajectories. In E. Heikkilä, A. Kostiainen, J. Leinonen, I. Söderling. (Eds.) *Participation, Integration, and Recognition: Changing Pathways to Immigrant Incorporation.* (pp. 21–31). Turku: Institute of Migration.

Mähönen, T. A., Varjonen, S., Prindiville, N., Arndold, L. & Jasinkaja-Lahti, I. (2015). Boundaries of national belonging in Ingiran Finnish return migration: a multi-level perspective. *Nordic Journal of Migration Research, 5*(3), 126–134.

Mähönen, T. A. & Yijälä, A. (2016). *Ingrian Finnish remigrants' integration in Finland*. Helsinki: City of Helsinki Urban Facts.

Mähönen, T. A., Leinonen, E. & Jasinskaja-Lahti, I. (2013). Met expectations and the wellbeing of diaspora immigrants: a longitudinal study. *International Journal of Psychology, 48*(3), 324–333.

Mölsä, M.; Tiilikainen, M.; Punamäki R-L. (2017a). Usage of healthcare services and preference for mental healthcare among older Somali immigrants in Finland. *Ethnicity & Health 3*. doi: 10.1080/13557858.2017.1346182

Mölsä, M., Kuittinen, S., Tiilikainen, M., Honkasalo, M. L. & Punamäki, R-L. (2017b). Mental health among older refugees: the role of trauma, discrimination, and religiousness. *Aging & Mental Health 21*(8):829–837.

Mölsä, M., Punamäki, R-L., Saarni, S. I., Tiilikainen, M., Kuittinen, S. & Honkasalo, M. L. (2014). Mental and somatic health and pre- and post-migration factors among older Somali refugees in Finland. *Transcultural Psychiatry, 51*(4):499–525.

Mölsä, M. E., Hjelde, K. H. & Tiilikainen, M. (2010). Changing conceptions of mental distress among Somalis in Finland. *Transcultural Psychiatry, 47*(2), 276–300.

Nagi, S. Z. (1964). A Study in the Evaluation of Disability and Rehabilitation Potential: Concepts, Methods, and Procedures. *American Journal of Public Health Nations Health, 54*, 1568–1579.

Nazroo, J. Y. (2003). The structuring of ethnic inequalities in health: economic position, racial discrimination, and racism. *American Journal of Public Health, 93*(2), 277–284.

Nettelbladt, P., Hansson, L., Stefansson, C. G., Borgquist, L. & Nordstrom, G. (1993). Test characteristics of the Hopkins Symptom Check List-25 (HSCL-25) in Sweden, using the Present State Examination (PSE-9) as a caseness criterion. *Social Psychiatry & Psychiatric Epidemiology, 28*(3), 130–133.

Nielsen SS & Krasnik A. (2010). Poorer self-perceived health among migrants and ethnic minorities versus the majority population in Europe: a systematic review. *International Journal of Public Health, 55*(5), 357–371.

Nielsen, S. S., Hempler, N. F. & Krasnik, A. (2013). Issues to consider when measuring and applying socioeconomic position quantitatively in immigrant health research. *International Journal of Environmental Research & Public Health, 10*(12), 6354–6365.

Nielsen, S. S., Jensen, N. K., Kreiner, S., Nørredam, M. & Krasnik, A. (2015). Utilisation of psychiatrists and psychologists in private practice among non-Western labour immigrants, immigrants from refugee-generating countries and ethnic Danes: the role of mental health status. *Social Psychiatry & Psychiatric Epidemiology, 50*(1), 67–76.

Nieminen, T., Sutela, H. & Hannula, U. (Eds.) (2015). *Ulkomaista syntyperää olevien työ ja hyvinvointi Suomessa 2014*. Helsinki: Tilastokeskus.

Noh, S. & Kaspar, V. (2003). Perceived discrimination and depression: moderating effects of coping, acculturation, and ethnic support. *American Journal of Public Health, 93*(2), 232–238.

Noh, S., Kaspar, V. & Wickrama, K. A. (2007). Overt and subtle racial discrimination and mental health: preliminary findings for Korean immigrants. *American Journal of Public Health, 97*(7), 1269–1274.

Norrbäck, M., de Munter, J., Tynelius, P., Ahlström, G. & Rasmussen, F. (2015). The impact on social capital of mobility disability and weight status: the Stockholm Public Health Cohort. *Disability & Health Journal, 8*(2), 200–207.

Nørredam, M., Garcia-Lopez, A., Keiding, N. & Krasnik, A. (2009). Risk of mental disorders in refugees and native Danes: a register-based retrospective cohort study. *Social Psychiatry & Psychiatric Epidemiology, 44*(12), 1023–1029.

Nørredam, M., Olsbjerg, M., Petersen, J. H., Bygbjerg, I. & Krasnik, A. (2012). Mortality from infectious diseases among refugees and immigrants compared to native Danes: a historical prospective cohort study. *Tropical Medicine & International Health, 17*(2), 223–230.

OECD. (2012)*. Settling In: OECD Indicators of Immigrant Integration 2012*. OECD Publishing.

OECD. (2016)*. International Migration Outlook 2016*. Paris: OECD Publishing.

Ormel, J., VonKorff, M., Ustun, T. B., Pini, S., Korten, A. & Oldehinkel, T. (1994). Common mental disorders and disability across cultures. Results from the WHO Collaborative Study on Psychological Problems in General Health Care. *JAMA, 272*(22), 1741–1748.

Ostbye, T., Taylor, D. H.,Jr, Krause, K. M. & Van Scoyoc, L. (2002). The role of smoking and other modifiable lifestyle risk factors in maintaining and restoring lower body mobility in middle-aged and older Americans: results from the HRS and AHEAD. Health and Retirement Study. Asset and Health Dynamics Among the Oldest Old. *Journal of the American Geriatrics Society, 50*(4), 691–699.

Ostir, G. V., Ottenbacher, K. J., Fried, L. P. & Guralnik, J. M. (2007). The Effect of Depressive Symptoms on the Association Between Functional Status and Social Participation. *Social Indicators Research, 80*(2), 379–392.

Pager, D. & Shepherd, H. (2008). The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets. *Annual Review of Sociology, 34*, 181–209.

Park, R. E. (1928). Human Migration and the Marginal Man. *American Journal of Sociology, 33*, 881–893.

Pascoe, E. A. & Smart Richman, L. (2009). Perceived discrimination and health: a meta-analytic review. *Psychological Bulletin, 135*(4), 531–554.

Patel, K., Kouvonen, A., Koskinen, A., Kokkinen, L., Donnelly, M., O'Reilly, D. & Vaananen, A. (2017). Distinctive role of income in the all-cause mortality among working age migrants and the settled population in Finland: A follow-up study from 2001 to 2014. *Scandinavian Journal of Public Health*, doi: 10.1177/1403494817726620.

Patel, V. (1995). Explanatory models of mental illness in sub-Saharan Africa. *Social Science & Medicine, 40*(9), 1291–1298.

Persson, G., Mahmud, A. J., Hansson, E. E. & Strandberg, E. L. (2014). Somali women's view of physical activity – a focus group study. *BMC Womens Health, 14*, doi:10.1186/1472-6874-14-129.

Pudaric, S., Sundquist, J., Johansson, S-E. (1998). Impaired mobility and impaired working capacity among foreign born people and native born Swedes. *Journal of Epidemiology & Community Health, 52*(34), 34–40.

Pudaric, S., Sunquist, J., Johansson, S-E. (2003). Country of birth, instrumental activities of daily living, self-rated health and mortality: a Swedish population-based survey of people aged 55–74. *Social Science & Medicine, 56*(12), 2493–2503.

Pohjanpää, K., Paananen, S. & Nieminen, M. (2003). *Maahanmuuttajien elinolot – Venäläisten, virolaisten, somalialaisten ja vietnamilaisten elämää Suomessa 2002*. Helsinki: Tilastokeskus.

Porta, M. (Ed.) (2014). *A Dictionary of Epidemiology*. (6th ed.) Oxford: Oxford University Press.

Pottie, K. & Gabriel, P. (2014). Ethical Issues across the Spectrum of Migration and Health Research. In M. B. Schenker, X. Castaneda & A. Rodriguez-Lainz (Eds.) *Migration and Health. A Research Methods Handbook*. (pp. 345–360). Oakland: University of California Press.

Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R. & Rahman, A. (2007). No health without mental health. *Lancet, 370*(9590), 859-877.

Quillian, L. (2006). New Approaches to Understanding Racial Prejudice and Discrimination. *Annual Review of Sociology, 32*, 299–328.

Quinn, S. C. (2004). Ethics in Public Health Research. Protecting Human Subjects: the Role of Community Advisory Boards. *American Journal of Public Health, 94*(6), 918–922.

Rask, S. (2017). Miten maahanmuutto ja suomalaisuus näyttäytyvät tulevaisuuden terveys- ja hyvinvointitutkimuksissa? Puheenvuoro. Teemanumerossa Näkökulmia Ulkomaalaistaustaisiin Suomessa. *Sosiaalilääketieteellinen Aikakauslehti, 54*(3), 251–256.

Rask, S., Paavonen, A., Lilja, E., Koponen, P., Suvisaari, J., Halla, T.…Castaneda, A. (2016). Separation from primary family is associated with the well-being and integration of Kurdish and Somali origin adult migrants in Finland (in Finnish, with English abstract). *Yhteiskuntapolitiikka* (81), 273–287.

Rastas, A. (2007). *Rasismi lasten ja nuorten arjessa. Transnationaalit juuret ja monikulttuuristuva Suomi (Doctoral dissertation)*. Tampere: Tampere University.

Rastas, A. (2005). *Racializing categorization among young people in Finland. Nordic Journal of Youth Research, 13*(2), pp. 147-166.

Ravenstein, E. G. (1885). The laws of migration. *Journal of the Statistical Society of London, 48*, 167–235.

Rechel, B., Grundy, E., Robine, J. M., Cylus, J., Mackenbach, J. P., Knai, C. & McKee, M. (2013). Ageing in the European Union. *Lancet, 381*(9874), 1312–1322.

Rechel, B., Mladovsky, P. & Deville, W. (2012). Monitoring migrant health in Europe: a narrative review of data collection practices. *Health Policy, 105*(1), 10–16.

Rechel, B., Mladovsky, P., Ingleby, D., Mackenbach, J. P. & McKee, M. (2013). Migration and health in an increasingly diverse Europe. *Lancet, 381*(9873), 1235–1245.

Reed, G. M., Spaulding, W. D. & Bufka, L. F. (2009). The relevance of the International Classification of Functioning, Disability and Health (ICF) to mental disorders and their treatment. *European Journal of Disability Research, 3*(4), 340–359.

Riosmena, F., Wong, R. & Palloni, A. (2013). Migration selection, protection, and acculturation in health: a binational perspective on older adults. *Demography, 50*(3), 1039–1064.

Ritsner, M., Ponizovsky, A., Kurs, R. & Modai, I. (2000). Somatization in an immigrant population in Israel: a community survey of prevalence, risk factors, and help-seeking behavior. *American Journal of Psychiatry, 157*(3), 385–392.

Robins, J., Rotnitzky, A. & Zhao, L. (1994). Estimation of regression coefficients when some regressors are not always observed. *Journal of the American Statistical Association, 89*(427), 846–866.

Rodriguez-Lainz, A. & Castaneda, X. (2014). Studying Migrant Populations: General Considerations and Approaches. In M. B. Schenker, X. Castaneda & A. Rodriguez-

Lainz (Eds.) *Migration and Health. A Research Methods Handbook.* (pp. 12–37). Oakland: Univeristy of California Press.

Rohlof, H. G., Knipscheer, J. W. & Kleber, R. J. (2014). Somatization in refugees: a review. *Social Psychiatry & Psychiatric Epidemiology, 49*(11), 1793–1804.

Royall, D. R., Lauterbach, E. C., Kaufer, D., Malloy, P., Coburn, K. L., Black, K. J. & Committee on Research of the American Neuropsychiatric Association. (2007). The cognitive correlates of functional status: a review from the Committee on Research of the American Neuropsychiatric Association. *Journal of Neuropsychiatry and Clinical Neurosciences, 19*(3), 249–265.

Ryazantsev, S. V. (2013). *Migration from Russia to Australia and Formation of a Russian Community*. Canberra: ANU Centre for European Studies Briefing Paper Series.

Sainio, P., Koskinen, S., Heliövaara, M., Martelin, T., Härkänen, T., Hurri, H.…Aromaa, A. (2006). Self-reported and test-based mobility limitations in a representative sample of Finns aged 30+. *Scandinavian Journal of Public Health, 34*, 378–386.

Sainio, P., Martelin, T., Koskinen, S. & Heliövaara, M. (2007). Educational differences in mobility: the contribution of physical workload, obesity, smoking and chronic conditions. *Journal of Epidemiology & Community Health, 61*, 401–408.

Santiago-Irizarry, V. (1996). Culture as cure. *Cultural Anthropology, 11*(1), 3–24.

Saunders, M., Barr, B., McHale, P. & Hamelmann, C. (2017). *Key policies for addressing the social determinants of health and health inequities*. Copenhagen: WHO Regional Office for Europe.

Schonfeld, W. H., Verboncoeur, C. J., Fifer, S. K., Lipschutz, R. C., Lubeck, D. P. & Buesching, D. P. (1997). The functioning and well-being of patients with unrecognized anxiety disorders and major depressive disorder. *Journal of Affective Disorders, 43*(2), 105–119.

Senior, P. A. & Bhopal, R. (1994). Ethnicity as a variable in epidemiological research. *BMJ, 309*(6950), 327–330.

Shishehgar, S., Gholizadeh, L., DiGiacomo, M. & Davidson, P. M. (2015). The impact of migration on the health status of Iranians: an integrative literature review. *BMC International Health and Human Rights, 15*, doi:10.1186/s12914-015-0058-7.

Siddiqui, F., Lindblad, U. & Bennet, L. (2014). Physical inactivity is strongly associated with anxiety and depression in Iraqi immigrants to Sweden: a cross-sectional study. *BMC Public Health, 14*(1), doi:10.1186/1471-2458-14-502.

Skogberg, N., Laatikainen, T., Jula, A., Härkänen, T., Vartiainen, E. & Koponen, P. (2017). Contribution of sociodemographic and lifestyle-related factors to the differences in metabolic syndrome among Russian, Somali and Kurdish migrants compared with Finns. *International Journal of Cardiology.* doi: 10.1016/j.ijcard.2017.01.051.

Skogberg, N., Laatikainen, T., Koskinen, S., Vartiainen, E., Jula, A., Leiviskä, J.…Koponen, P. (2016). Cardiovascular risk factors among Russian, Somali and Kurdish migrants in comparison with the general Finnish population. *European Journal of Public Health, 26*(4), 667–673.

Solar, O. & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion*. Geneva: WHO.

Söndergaard, H. P., Ekblad, S. & Theorell, T. (2001). Self-reported life event patterns and their relation to health among recently resettled Iraqi and Kurdish refugees in Sweden. *Journal of Nervous & Mental Disease., 189*(12), 838–845.

Spencer, S. M., Albert, S. M., Bear-Lehman, J. & Burkhardt, A. (2008). Relevance of race and ethnicity for self-reported functional limitation. *Journal of the American Geriatrics Society, 56*(3), 553–557.

Statistics Finland. (2017). Population Structure: population by origin, country of birth and language. Retrieved June 21, 2017, from http://www.stat.fi/tup/suoluk/suoluk_vaesto_en.html

Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. A. & van Ommeren, M. (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: a systematic review and meta-analysis. *JAMA, 302*(5), 537–549.

Stegenga, B. T., Nazareth, I., Torres-Gonzalez, F., Xavier, M., Svab, I., Geerlings, M. I.…King, M. (2012). Depression, anxiety and physical function: exploring the strength of causality. *Journal of Epidemiology & Community Health, 66*(7), doi: 10.1136/jech.2010.128371.

Stenholm, S., Kronholm, E., Sainio, P., Borodulin, K., Era, P., Fogelholm, M.…Koskinen, S. (2010). Sleep-related factors and mobility in older men and women. *Journals of Gerontology: Biological Sciences & Medical Sciences, 65*(6), 649–657.

Stuck, A. E., Walthert, J. M., Nikolaus, T., Bula, C. J., Hohmann, C. & Beck, J. C. (1999). Risk factors for functional status decline in community-living elderly people: a systematic literature review. *Social Science & Medicine, 48*(4), 445–469.

Sundquist, J., Bayard-Burfield, L., Johansson, L. M. & Johansson, S. E. (2000). Impact of ethnicity, violence and acculturation on displaced migrants: psychological distress and psychosomatic complaints among refugees in Sweden. *Journal of Nervous & Mental Disease, 188*(6), 357–365.

Sungurova Y, Johansson S. E. & Sundquist J. (2006). East-west health divide and east-west migration: Self-reported health of immigrants from Eastern Europe and the former Soviet Union in Sweden. *Scandinavian Journal of Public Health, 34*(2), 217–221.

Syse, A.; Strand, B. H.; Næss, Ø.; Steingrímsdóttir, Ó. A.; Kumar, B. N. (2016) Differences in all-cause mortality: A comparison between immigrants and the host population in Norway 1990–2012. *Demographic research 34*(22), 615–656.

Taloyan, M., Johansson, L. M., Johansson, S. E., Sundquist, J. & Kocturk, T. O. (2006). Poor self-reported health and sleeping difficulties among Kurdish immigrant men in Sweden. *Transcultural Psychiatry, 43*(3), 445–461.

Taloyan, M., Johansson, S. E., Sundquist, J., Kocturk, T. O. & Johansson, L. M. (2008). Psychological distress among Kurdish immigrants in Sweden. *Scandinavian Journal of Public Health, 36*(2), 190–196.

Taloyan, M., Sundquist, J. & Al-Windi, A. (2008). The impact of ethnicity and self-reported health on psychological well-being: a comparative study of Kurdish-born and Swedish-born people. *Nordic Journal of Psychiatry, 62*(5), 392–398.

Tervonen, M. (2014). Historiankirjoitus ja myytti yhden kulttuurin Suomesta. In P. Markkola, H. Snellman & A. Östman (Eds.) *Kotiseutu ja kansakunta. Miten suomalaista historiaa on rakennettu*. (pp. 137–162). Helsinki: Suomalaisen Kirjallisuuden Seura.

Thomas, W. I. & Thomas, D. S. (1970). Situations Defined as Real are Real in their Consequences. In G. P. Stone & H. A. Farberman (Eds.) *Social Psychology Through Symbolic Interaction*. Massachusetts: Xerox College Publishers.

Thomas, S. B., Quinn, S. C., Butler, J., Fryer, C. S. & Garza, M. A. (2011). Toward a fourth generation of disparities research to achieve health equity. *Annual Review of Public Health, 32*, 399–416.

Tiilikainen, M., Ismail, A., Tuusa, E., Abdulkarim, M. & Adam, A. (2013). *Somalis in Helsinki*. New York: Open Societies Foundations.

Tinghög, P., Al-Saffar, S., Carstensen, J. & Nordenfelt, L. (2010). The association of immigrant- and non-immigrant-specific factors with mental ill health among immigrants in Sweden. *International Journal of Social Psychiatry, 56*(1), 74–93.

Tinghög, P. & Carstensen, J. (2010). Cross-cultural equivalence of HSCL-25 and WHO (ten) Wellbeing index: findings from a population-based survey of immigrants and non-immigrants in Sweden. *Community Mental Health Journal, 46*(1), 65–76.

Tinghög, P., Hemmingsson, T. & Lundberg, I. (2007). To what extent may the association between immigrant status and mental illness be explained by socioeconomic factors? *Social Psychiatry & Psychiatric Epidemiology, 42*(12), 990–996.

Toivanen, M. (2014). *Negotiating home and belonging. Young Kurds in Finland. (Doctoral dissertation)*. Turku: University of Turku.

Ujcic-Voortman, J. K., Baan, C. A., Seidell, J. C. & Verhoeff, A. P. (2012). Obesity and cardiovascular disease risk among Turkish and Moroccan migrant groups in Europe: a systematic review. *Obesity Reviews, 13*(1), 2–16.

UN General Assembly. (1951). Convention Relating to the Status of Refugees. United Nations, Treaty Series, vol. 189, 137.

United Nations. (2013). Population Facts: The number of international migrants worldwide reaches 232 million. Retrieved September 20, 2017, from https://esa.un.org/unmigration/documents/the_number_of_international_migrants.pdf.

United Nations Committee for Development Policy. (2016). List of Least Developed Countries. Retrieved February 2, 2017, from http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf.

United Nations Development Policy and Analysis Division. (2012). Statistical annex. Retrieved February 2, 2017, from http://www.un.org/en/development/desa/policy/wesp/wesp_current/2012country_class.pdf

United Nations High Commissioner for Refugees. (2006). UNHCR Master Glossary of Terms. Retrieved February 17, 2017, from http://www.refworld.org/docid/42ce7d444.html

United Nations Statistics Division. (2016). *World Statistics Pocketbook*. New York: United Nations Publication.

United Nations. (2015). Trends in International Migrant Stock: Migrants by Destination and Origin. Retrieved February 17, 2017, from http://www.un.org/en/development/desa/population/migration/data/estimates2/estimates15.shtml

Verbrugge, L. M. & Jette, A. M. (1994). The disablement process. *Social Science & Medicine, 38*(1), 1–14.

Viertiö, S., Sainio, P., Koskinen, S., Perälä, J., Saarni, S. I., Sihvonen, M.…Suvisaari, J. (2009). Mobility limitations in persons with psychotic disorder: findings from a population-based survey. *Social Psychiatry & Psychiatric Epidemiology, 44*(4), 325–332.

Viruell-Fuentes, E. A. (2007). Beyond acculturation: immigration, discrimination, and health research among Mexicans in the United States. *Social Science & Medicine, 65*(7), 1524–1535.

Viruell-Fuentes, E. A., Miranda, P. Y. & Abdulrahim, S. (2012). More than culture: structural racism, intersectionality theory, and immigrant health. *Social Science & Medicine, 75*(12), 2099–2106.

Westman, J., Martelin, T., Härkänen, T., Koskinen, S. & Sundquist, K. (2008). Migration and self-rated health: a comparison between Finns living in Sweden and Finns living in Finland. *Scandinavian Journal of Public Health, 36*(7), 698–705.

White, P. (2006). Migrant Populations Approaching Old Age: Prospects in Europe. *Journal of Ethnic & Migration Studies 32*(8), 1283–1300.

Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E.…Vos, T. (2013). Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet, 382*(9904), 1575–1586.

Wiking, E., Johansson, S. E. & Sundquist, J. (2004). Ethnicity, acculturation, and self reported health. A population based study among immigrants from Poland, Turkey, and Iran in Sweden. *Journal of Epidemiology & Community Health, 58*(7), 574–582.

Williams, D. R., Yu, Y., Jackson, J. S. & Anderson, N. B. (1997). Racial Differences in Physical and Mental Health: Socioeconomic Status, Stress, and Discrimination. *Journal of Health Psychology, 2*(3), 335–351.

Williams, D. R. & Mohammed, S. A. (2009). Discrimination and racial disparities in health: evidence and needed research. *Journal of Behavioral Medicine, 32*(1), 20–47.

Wimmer, A. & Glick-Schiller, N. (2002). Methodological nationalism and beyond: nation–state building, migration and the social sciences. *Global Networks, 2*(4), 301–334.

Wittchen, H. U., Jacobi, F., Rehm, J., Gustavsson, A., Svensson, M., Jonsson, B.…Steinhausen, H. C. (2011). The size and burden of mental disorders and other disorders of the brain in Europe 2010. *European Neuropsychopharmacology, 21*(9), 655–679.

Woodward, A., Howard, N. & Wolffers, I. (2014). Health and access to care for undocumented migrants living in the European Union: a scoping review. *Health Policy & Planning, 29*(7), 818–830.

World Health Organization. (1980). *International Classification of Impairments, Disabilities, and Handicaps*. Geneva, Switzerland: World Health Organization.

World Health Organization. (1996). *WHOQOL-BREF: Introduction, Administration, Scoring and Generic version of the assessment. Field trial version*. Geneva: World Health Organization.

World Health Organization. (2001). *International Classification of Functioning, Disability and Health (ICF)*. Geneva: World Health Organization.

World Health Organization. (2011). *World Report on Disability*. Geneva, Switzerland: World Health Organization.

World Health Organization. (2013). *How to use the ICF: A Practical Manual for using the International Classification of Functioning, Disability and Health (ICF) Exposure draft for comment*. Geneva, Switzerland: World Health Organization.

World Health Organization. (2015). *The European health report 2015. Targets and beyond – Reaching new frontiers in evidence. Highlights*. Copenhagen, Denmark: WHO Regional Office for Europe.

World Health Organization. (2016). Mental disorders: Fact sheet. Retrieved March 20, 2017, from http://www.who.int/mediacentre/factsheets/fs396/en/

World Health Organization. (2017). *Depression and Other Common Mental Disorders: Global Health Estimates*. Geneva, Switzerland: World Health Organization.

Young, T. (1998). *Population Health: Concepts and Methods*. New York, NY: Oxford University Press.

Zayfert, C., Dums, A. R., Ferguson, R. J. & Hegel, M. T. (2002). Health functioning impairments associated with posttraumatic stress disorder, anxiety disorders, and depression. *Journal of Nervous & Mental Disease, 190*(4), 233–240.

Zhou, M. (1997). Segmented Assimilation: Issues, Controversies, and Recent Research on the New Second Generation. *International Migration Review, 31*(4), 975–1008.