

Mental health, substance misuse and labour market participation in teenage refugees in Sweden – A longitudinal perspective

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Abstract

Aim: To fill the knowledge gap about the importance of contextual factors after resettlement on mental health, substance misuse and labour market participation among young refugees who immigrate to Sweden as teenagers. **Methods:** Register studies in national registers of national cohorts of young refugees, unaccompanied and accompanied, who settled in Sweden as teenagers. Studies 1-4 used Cox regression models to study the risks of psychiatric care consumption and substance misuse, while Study 5 used multinomial regression to study position on the labour. These findings were compared with peers from the same birth cohorts in the general Swedish population and non-European intercountry adoptees (Studies 2 and 5). **Results:** The overall results suggest that young accompanied and unaccompanied refugees were more likely to be admitted to psychiatric inpatient and compulsory hospital care, but not outpatient care, with refugees born in the Horn of Africa and Iran having the highest risk (Study 1). Young accompanied and unaccompanied refugees also had higher risk of hospitalization and criminal conviction associated with substance misuse (Study 3). Longer duration of residence in Sweden was associated with increased risks of outpatient care (Study 1) and hospitalization related to substance misuse (studies 3 and 4). These increase risks of young refugees were associated with their socioeconomic living conditions (Studies 3 and 4), but risk factors associated with the country of origin of the refugee population and the intercountry adoptees were more important determinants of schizophrenia than socioeconomic conditions in Sweden (Study 2). Young accompanied and unaccompanied refugees and intercountry adoptees had a lower likelihood of being in full employment than native Swedes with comparable levels of education. Secondary education, however, increased employment chances and reduced the risk of being neither employed nor in education or training (Study 5). **Conclusion:** Evidence suggests that several groups of young refugees are at higher risk of mental health problems and substance misuse. They also face employment disadvantages and barriers to psychiatric care in the early stages of developing a psychiatric disorder.

Keywords: *Young refugees, mental health, substance misuse, care consumption, labour market.*

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Esta tese é dedicada a Manuela
Gama. Pelo carinho, amizade e pelo
apoio que me tem dado.

ABSTRACT

Aim: To fill the knowledge gap about the importance of contextual factors after resettlement on mental health, substance misuse and labour market participation among young refugees who immigrate to Sweden as teenagers.

Methods: Register studies in national registers of national cohorts of young refugees, unaccompanied and accompanied, who settled in Sweden as teenagers. Studies 1-4 used Cox regression models to study the risks of psychiatric care consumption and substance misuse, while Study 5 used multinomial regression to study position on the labour. These findings were compared with peers from the same birth cohorts in the general Swedish population and non-European intercountry adoptees (Studies 2 and 5).

Results: The overall results suggest that young accompanied and unaccompanied refugees were more likely to be admitted to psychiatric inpatient and compulsory hospital care, but not outpatient care, with refugees born in the Horn of Africa and Iran having the highest risk (Study 1). Young accompanied and unaccompanied refugees also had higher risk of hospitalization and criminal conviction associated with substance misuse (Study 3). Longer duration of residence in Sweden was associated with increased risks of outpatient care (Study 1) and hospitalization related to substance misuse (Studies 3 and 4). These increased risks of young refugees were associated with their socioeconomic living conditions (Studies 3 and 4), but risk factors associated with the country of origin of the refugee population and the intercountry adoptees were more important determinants of schizophrenia than socioeconomic conditions in Sweden (Study 2). Young accompanied and unaccompanied refugees and intercountry adoptees had a lower likelihood of being in full employment than native Swedes with comparable levels of education. Secondary education, however, increased employment chances

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SAMMANFATTNING

Syfte: Att undersöka betydelsen av kontextuella faktorer för psykisk hälsa, alkohol- och narkotikamissbruk samt sysselsättning bland unga flyktingar som invandrat till Sverige som tonåringar.

Metod: Avhandlingen baseras i sin helhet på studier i nationella register av nationella kohorter av flyktingar som anlände till Sverige i åldern 13-19 år och var folkbokförda i Sverige 2005, jämförda med övrig svensk befolkning och utlandsadopterade (Studier 2 och 5) i samma åldrar. Studierna 1-4 använder sig av Cox regressionsmodeller för att undersöka psykiatrisk vårdkonsumtion inklusive vård relaterad till alkohol- och narkotikamissbruk. Studie 5 undersöker position på arbetsmarknaden bland unga ensamkommande och icke-ensamkommande flyktingar med hjälp av multinominal regression.

Resultat: Unga ensamkommande och icke-ensamkommande flyktingungdomar vårdas i större utsträckning i psykiatrisk sluten- och tvångsvård, men ej öppenvård, med störst risk för flyktingar födda på Afrikas Horn och i Iran (Studie 1). Unga ensamkommande och icke-ensamkommande flyktingungdomar hade också högre risk för sjukhusvård och att dömas för brott i samband med alkohol- och narkotikamissbruk (Studie 3). Denna ökade vårdkonsumtion förklaras till en del av de unga flyktingarnas socioekonomiska levnadsförhållanden (Studier 3 och 4). Konsumtionen av psykiatrisk öppenvård ökade med tiden efter ankomsten till Sverige (Studie 1), liksom sjukhusvård till följd av alkohol- och narkotikamissbruk (Studier 3 och 4). Sjukhusvård och kriminalitet i samband med missbruk av alkohol och narkotika är vanligare bland unga manliga flyktingar än för kvinnliga. Faktorer associerade med flyktingars och utlandsadopterades ursprungsland var mer betydande riskfaktorer för schizofreni än de socioekonomiska förhållandena i Sverige (Studie 2). Unga ensamkommande och icke-ensamkommande flyktingar hade en högre risk att varken arbeta eller delta i en utbildning och hade också sämre utsikter till anställning än inhemska Svenskar med

jämförbar utbildningsnivå. Gymnasiekompetens ökade chanserna för inträde på arbetsmarknaden (Studie 5).

Slutsats: Resultaten tyder på att flera grupper av unga flyktingar har en högre risk för problem med psykisk ohälsa och substansmissbruk. De konfronteras även i högre grad med arbetslöshet och olika hinder för att få psykiatrisk vård i tidiga stadier av psykisk ohälsa.

ORIGINAL ARTICLES

Study 1

Manhica H, Almquist YB, Rostila M and Hjern A. (2016) The use of psychiatric services by young adults who came to Sweden as teenage refugees: a national cohort study. *Epidemiology and Psychiatric Sciences*. doi:10.1017/S2045796016000445

Study 2

Manhica H, Hollander AC, Almquist YB, Rostila M, Hjern A. (2016) Origin and schizophrenia in young refugees and intercountry adoptees from Latin America and East Africa in Sweden: a comparative study. *British Journal of Psychiatry Open*. 2 (1); doi: 10.1192/bjpo.bp.115.002048

Study 3

Manhica H, Gauffin K, Almquist YB, Rostila M, Hjern A. (2016) Hospital Admission and Criminality Associated with Substance Misuse in Young Refugees - A Swedish National Cohort Study. *PLoS ONE*. 11(11): doi.org/10.1371/journal.pone.0166066

Study 4 (submitted manuscript)

Manhica H, Gauffin K, Berg L, Rodriguez A, Almquist YB, Rostila M, Hjern A. (2017) *Alcohol related disorder among young refugees who arrived in Sweden as teenagers*. (Accepted)

Study 5 (manuscript)

Manhica H, Berg L, Almquist YB, Rostila M, and Hjern A. *Labour market participation among young refugees in Sweden and the potential of education: a national cohort study*

ABBREVIATIONS

CI	Confidence Interval
CSDH	Commission on Social Determinants of Health
ICD	International Classification of Diseases
IR	Incidence rate
RR	Relative Risk
NEET	Neither Education, Employment or Training
PBA	Price Base Amounts
HR	Hazard Ratio
RRR	Relative Risk Ratio
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization

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1 INTRODUCTION

International migration, both voluntary and forced, has given rise to multicultural societies because of the increasing diversity of migrant areas of origin. While migrants often bring traditions and cultural practices from their home countries, they are also likely to adapt to the host country's cultural norms and lifestyles. Migrants are also often visible in terms of their physical appearance and dress styles. They tend to live in underprivileged, segregated ethnic neighbourhoods and have a lower socio-economic status than the native population (1).

Why do people migrate? Some migrants leave their home countries to improve their socio-economic circumstances, whereas others migrate for family reasons. Refugees and asylum seekers, on the other hand, have been forced to flee from their home countries because of persecution, conflict, violence or other life-threatening circumstances. Immigration of refugees and asylum seekers has increased dramatically over the last decades. Recent reports from the UNHCR indicate that the global number of refugees has increased from about 15 million in 1995 to nearly 23 million in 2015, and the number of asylum seekers across the EU has increased from almost 500,000 in the early 2000s to about 2 million in 2015. Among asylum seekers, 10,000 unaccompanied minors annually sought asylum in the EU in the 2000s. This number increased to about 90,000 in 2015 (2, 3). No signs of a reverse in these trends were observed in mid-2016 (4).

Refugees and asylum seekers are the most vulnerable group among the migrant population with regard to mental health, substance misuse and labour market outcomes (hereafter interchangeably referred to as "mental health and social adjustment). The migration process of this population is often characterized by events that pose threats to their psychological wellbeing, both prior to and after resettlement. A systematic review of the risk and protective factors for mental health among young refugees resettled in high-income countries (5) indicated that the psychological distress reported among young refugees is strongly associated with their exposure to war-related traumas in their country

of origin. The review points to large gaps in our understanding of the importance of post migration risk factors for the psychological wellbeing of this vulnerable population.

Consequently, we know relatively little about the importance of socio-contextual factors after resettlement for mental health and social adjustment among young refugees who immigrate to Sweden as teenagers. In order to fill this research gap, the studies in this doctoral thesis used a longitudinal design. This made it possible to identify differences between the mental health and social adjustment outcomes of young refugees and the majority population. It also allowed to explore whether mental health and social adjustment varies within the group of young refugees – according, for example, to their country of origin, whether they were accompanied by their parents, and how long they have lived in Sweden. Additionally, the role of gender, income, area of residence, and educational attainment is considered.

In this doctoral thesis, mental health outcomes are primarily based on the chapter “Mental and behavioural disorders” (F) as defined by the tenth edition of the World Health Organization’s International Classification of Disorders (ICD-10). Study 1 investigates patterns of utilization of psychiatric care services (F01-F10 and F19-F99) among unaccompanied and accompanied young refugees, while Study 2 investigates the relationship between country of origin and schizophrenia (F20-F29) among young refugees and compares these results with intercountry adoptees from the same country of origin.

Because substance misuse (F10–F19) is treated by a separate branch of the psychiatric care services in Sweden, Study 3 investigates hospital admission and criminality associated with substance misuse (narcotics) in young refugees. Study 4 investigates hospitalizations due to alcohol-related disorders among young refugees. Finally, because working life is crucial for psychological wellbeing, Study 5 attempts to understand the socio-economic context of the refugee population by investigating the role of educational achievement for labour market participation among young refugees, using intercountry adoptees as a comparison group.

The longitudinal approach of the five studies presented in this thesis provides an opportunity to understand adjustments of socioeconomic events after resettlement and the transition over time. Although this thesis focuses on young refugees, intercountry adoptees are used as a comparison group in Studies 2

and 5 since they may share similar risk factors for health and social adjustment formed in their country of origin. Young refugees and intercountry adoptees also share the post-migration experience of having a physical appearance that differs from that of the majority population. In all the studies, the reference population was peers from the same birth cohorts in the general Swedish population with both biological parents born in Sweden.

This doctoral thesis is organized as follows: the next section addresses the main concepts used in the thesis, followed by a description of migration patterns to Sweden since the Second World War. After that, the main objectives and research questions addressed in this thesis are presented. This is followed by a literature review that addresses the mental health and socioeconomic adjustments faced by refugees and migrants in Sweden. After that comes a discussion of theories related to risk and protective factors for poor mental health and social adjustment. This is followed by a description of the available data and methodology, then the main results and consequent discussion. After that the policy implications of the main results are explored, as well as the limitations and strengths of the studies, followed finally by the main conclusion.

1.1 Main concepts

According to the UNHCR, **accompanied minors** are children who arrive in their destination countries in the company of one or both parents. These children have applied for asylum under the age of 18 as defined in Article 1 of the Convention on the Rights of the Child of 20 November 1989 (CRC).

Acculturation denotes the process of adaptation to the cultural norms of the host society (6).

An **asylum seeker** is a person who has fled his/her own country and seeks protection in another country by asking for asylum. Asylum seekers have the right to receive protection and assistance until the asylum process is completed (2). Individuals whose application is still being considered by the Migration Board and/or the Migration Court are not registered in the Population Statistics and can therefore not be identified in other registers either.

Ethnicity is a morphological, cultural formulation that categorizes groups of individuals based on one's identity, with regards to shared cultural values (7). "Country of origin or region of birth" is hereby used as a proxy to denote empirical boundaries of ethnic groups. The use of country/region of origin as a proxy of ethnicity has been widely considered as one of the most important challenges of public health research (8).

According to the 1951 Geneva Convention, a **refugee** is a person who has been forced to flee from his/her country of residence on grounds of persecution, war, or violence. The international instrument of refugee law protects individuals with refugee status.

An **unaccompanied minor** is a person who has applied for asylum under the age of 18, the age of majority as defined in Article 1 of the Convention on the Rights of the Child of 20 November 1989 (CRC). Compared with accompanied young refugees, unaccompanied minors are children who have been separated from both parents and other relatives and are not being cared for by an adult who, by law or custom, is responsible for doing so.

1.2 Migration patterns in Sweden

As in many Western countries, Sweden has become a multicultural society due to the increasing number of migrants from diverse ethnic backgrounds. Facts provided by Statistics Sweden have shown that in 2010, for example, 19 percent of the total Swedish population had a foreign background. Of these, approximately 15 percent were born abroad, 4 percent were native born with both parents born abroad, and about 52,000 were intercountry adoptees (9).

According to Statistics Sweden (10), migration patterns to Sweden have changed during the post-war period. The European foreign labour force dominated the immigration wave to Sweden in the 1950s and 1960s. However, the global economic crisis in the 1970s brought changes in the immigration patterns to Sweden as the demand for foreign labour

declined significantly and Sweden started to receive a considerable number of non-European refugees.

Refugees and their families have dominated the non-European migrant population in Sweden. This population has increased from the mid-1970s onwards. In the 1970s, for example, the majority of refugees came from Latin America while throughout the 1980s most came from Iran and Iraq. In the 1990s, Sweden received a large number of refugees from the former Yugoslavia and East Africa. In the last decade, Sweden has again received a considerable number of refugees from countries across the Middle East and the Horn of Africa (9, 11). About one third of the refugee population seeking protection in Sweden consists of children who have arrived in the company of one or both of their parents (12).

Over recent years, young unaccompanied asylum seekers have increased significantly in many European countries and particularly in Sweden. From 2009 to 2012, for instance, about 3,000 unaccompanied asylum-seeking children annually sought protection in Sweden. This number has increased rapidly over the last years, reaching 35,000 in 2015. However, numbers have declined sharply since the beginning of 2016. The unaccompanied minors have been primarily boys aged 15-17 years coming mainly from Somalia, Afghanistan, Iran, Syria, and Iraq (13).

In addition to refugee children, Sweden also received a considerable number of adopted children in the late 1960s. Adoption of non-European children in Western countries began in the aftermath of the Korean War. Sweden received about 50,000 thousand adopted non-European children from the mid-1960s to 2007. Apart from Korea, children from India and Sri Lanka in Asia, Colombia and Chile in South America, and Ethiopia in Africa, constituted the main sources of intercountry adoption to Sweden. Sweden has the largest population of intercountry adoptees in Europe and the highest per capita population of intercountry adoptees in the world (14, 15).

As previously mentioned, refugees are the most vulnerable group within the migrant population. This is particularly true for unaccompanied young refugees. Refugees' reasons for immigration are different from those who immigrate for employment or family reasons. Refugees and asylum seekers tend to have experienced more adverse life circumstances such as war related traumas, separation from friends and family members, persecution, and poverty. When newly resettled, the psychological wellbeing of the refugee population and asylum seekers is more likely to deteriorate because of the uncertainties posed by the asylum process. For some refugees, added stressors from resettlement challenges such as socio-economic exclusion and discrimination, are more likely to lead to poor mental health and poor social adjustment (5, 12, 16).

Intercountry adoptees are in some ways comparable with young refugees. Even though intercountry adoptees are raised by parents from the majority population, often with considerable material and educational resources, they may share comparable risk factors for mental health problems and social maladjustment that are related to their origin, such as exposure to poverty, genetic features, and physical appearance (12). Intercountry adoptees are, therefore, an important comparison group.

2 AIM AND RESEARCH QUESTIONS

The main objective of this doctoral thesis is to investigate mental health, substance misuse and labour market participation in young refugees who settle in Sweden as teenagers by applying a longitudinal perspective.

2.1 Research questions

- Do unaccompanied and accompanied young refugees have similar access to psychiatric care as the Swedish majority population? Is access to and utilization of psychiatric care services influenced by county of origin? Are there differences by socio-economic conditions, education or duration of residence? (Study 1)
- Does the more favourable socioeconomic situation of adoptees protect them from the high risk of schizophrenia experienced by young refugees? Are risk factors associated with country of origin more important determinants of schizophrenia than type of immigration? (Study 2)
- Are there differences in the risk of criminality and hospitalization associated with substance misuse between young refugees and the Swedish majority population? Within the group of young refugees, are there differences in the risk of hospitalization due to substance misuse between unaccompanied and accompanied minors? (Study 3 and Study 4)
- Is educational attainment associated with subsequent labour market participation in the same way for young refugees as for intercountry adoptees and the Swedish majority population? (Study 5)

3 LITERATURE REVIEW

3.1 Mental health

The migration process, and its underlying socioeconomic and environmental outcomes, is related to the context in which it occurs and whether the decision to emigrate is voluntary or forced (17). Particularly in the US, many studies that have attempted to compare the health of migrants to that of the native population have suggested that migrants are more likely to have better health outcomes than the host population (at least initially). This is known as the ‘healthy migrant effect’ (18). The mechanisms behind these patterns are disputed. However, the “self-selection hypothesis”, according to which healthier people are more likely to emigrate might be an important factor (18, 19). This is particularly true among young labour migrants, whose decision to emigrate depends on the costs of the migration process and the existing economic opportunities elsewhere (20, 21). A second hypothesis behind the health advantages of the migrant population is the “salmon bias”. This suggests that there is a selective re-migration of unhealthy migrants and those who desire to die in their home country, without this being registered in the country to which they migrated (22).

In contrast, studies of refugees have shown increased risks of mental health problems such as suicide attempts, psychotic disorders, substance misuse, anxiety, sleeping disturbances, post-traumatic stress disorder, social withdrawal, and other somatic complaints (23-31). The poor psychological health of the refugee population might result from risk factors associated with forced displacement, the psychological consequences of the high burden of war-related traumas, dangers encountered during their journey, the complexity of the asylum process and integration challenges occurring in their destination country (5, 12, 17, 28, 29, 31-33).

In Scandinavia, follow-up studies of the mental health of refugee children after resettlement have shown a high prevalence of psychological

distress upon arrival that tends to fade over time, but which remains higher when compared with the non-refugee population (34, 35). Improvements in refugees' mental health status over time have been associated with their legal status. Obtaining a residence permit banishes the fear of possible deportation. Living conditions may then improve, as refugees are better able to plan their lives, improve their language skills, and take advantage of educational and work opportunities (23, 35, 36).

Refugee children and adolescents who arrived in their destination countries separated from their parent(s) and caregivers are seen as most vulnerable among the refugee population (37). The importance of social relationships as a central source of emotional support has been linked to psychological health and health behaviours (38). For instance, unaccompanied young refugees may lack the social and emotional support from their parents and family members that is needed to develop coping mechanisms and buffers against traumas and stressors inherited from the migration process (39, 40). The absence of parents and family members may also encourage young unaccompanied refugees to adopt risky health behaviours such as substance misuse as a coping strategy to deal with their stressors (41, 42).

Studies that have compared the mental health of unaccompanied young refugees with other youth have demonstrated that unaccompanied young refugees are more likely to report depressive symptoms, including emotional problems, anxiety, depression, and post-traumatic stress symptoms (43, 44). This vulnerability has been particularly associated with their higher load of cumulative war trauma, along with the risk factors associated with the absence of their parents and family members (39, 45-47).

Intercountry adoptees are also an important vulnerable group among the migrant population (12). Raised by parents from the majority population, often with considerable material and educational resources, intercountry adoptees in general have positive health and social adjustment outcomes during their preschool years (48). However, in adulthood, poor mental health, including high prevalence of psychotic disorders,

anxiety, mood disorders, and substance abuse, as well as social maladjustment, have been reported (48, 49).

A Danish register-based study investigating schizophrenia in intercountry adoptees and native Danes showed that intercountry adoptees had an increased risk of developing schizophrenia compared to native Danes (50). Comparable findings of more severe mental health problems and social maladjustment among intercountry adoptees than among other youth living in similar socioeconomic circumstances have also been reported in Sweden (48). The aetiology of the health and well-being of intercountry adoptees in their young adulthood is not well understood. However, interaction between risk factors associated with the country of origin before adoption, such as exposure to infectious agents, poverty, malnutrition and perinatal complications, along with risk factors after migration, such as experience of discrimination, and socioeconomic exclusion in adulthood, appear to play a role (50).

As mentioned, refugees are of special concern due to their mental health vulnerability. This vulnerability might imply that refugees, and especially unaccompanied young refugees, are in high need of psychiatric care services in their destination countries.

3.2 Psychiatric care

The poor mental health reported among refugees suggests that they have greater needs of psychiatric care than the general population (5, 12, 17, 23, 29, 51). However, systematic reviews have reported gaps between these care needs and the utilization of psychiatric care services among the refugee population. These gaps have been explained by the existence of formal and informal barriers to psychiatric care (52, 53). Formal barriers are structural aspects of the health care systems and administrative obstacles, whereas informal barriers are language problems and psychological and socio-cultural factors (53-56).

Linguistic barriers have been seen as being among the most important barriers affecting both access to and the quality of health care services (56). Poor language skills can prevent refugees from describing their

symptoms and can also deter them from seeking health care due to embarrassment (52). Although the use of professional interpreters in healthcare delivery is associated with increased care utilization (57) and improvement in communication between the patient and health provider, there is nevertheless often mistrust on the part of the patient (52, 58).

Socio-cultural factors, such as health beliefs, stigmatization of the health care system, perception and recognition of mental health symptoms, and the way in which individuals cope with traumatic events, have all been seen as important barriers that deter refugees and migrants from seeking health care (53, 59, 60). Some studies suggest that some migrants and refugees seldom use the health care services because they fear discrimination. As a consequence, they may ignore the symptoms and risk deterioration of their mental health over time (61, 62).

Educational level and health literacy have been considered important determinants of care-seeking behaviours. Migrants and refugees with high levels of education and health literacy may be better able to understand their symptoms and how the health care system works and therefore better able to take full advantage of available health information and how to use the preventive health care services (52, 63-65). Gaps between needs and utilization of health care could also be due to other structural factors, such as lack of information about the health care system, the organization of the health care system, indirect financial costs, and institutional discrimination within the system (53, 56, 58, 66, 67).

Acculturation to Western values, beliefs and health practices is likely to produce unexpected patterns in the utilization of mental health care services among the migrant and refugee populations. According to the literature, migrants' attitudes to openness, understanding, acceptability and utilization of Western mental health care services can change over time (68). However, while acculturation may change health care seeking behaviours, the acculturation process can also stimulate risky health behaviours, such as substance misuse, that are similar to those of the

native population. The acculturation process can also be stressful because of cultural clashes and long term adverse socioeconomic environments, which could result in refugees misusing illicit substances as a coping mechanism.

3.3 Substance misuse

Refugees who have experienced war related traumas in their countries of origin may suffer from poor mental health, which is further, aggravated after resettlement (5, 12, 17, 29). Studies have demonstrated that war related traumas and chronic stress related to integration challenges are associated with substance misuse disorders (69-71).

The literature shows that the pathway linking trauma and substance misuse among the refugee population can be explained by the self-medication hypothesis (70). According to this hypothesis, an individual's difficulty in handling strong feelings is a leading cause of substance misuse. Following this hypothesis, traumatized refugees are more likely to misuse illicit substances to relieve painful feelings resulting from memories of past war traumas (72-74). Acculturation, the process of adaptation to the cultural norms of the host society (6), may also play a role in such an association. Through acculturation, some refugees may adopt risky health behaviours, such substance misuse, similar to the native population.

The importance of the acculturation process for substance misuse may be more common among unaccompanied youth migrants because they might lack emotional support from their parents and relatives (75). The acculturation process may also be stressful and increase vulnerability to substance misuse (71). In this regard, migrants and refugees who face cumulative integration challenges caused by cultural clashes and discrimination are more likely to develop feelings of frustration which lead to substance misuse as a coping mechanism (76, 77).

Apart from the importance of acculturation in addiction, some findings have suggested that migrants and refugees bring habits of substance

misuse from their home countries (12, 72, 78, 79). However, other studies have shown lower rates of hospitalization for alcohol misuse in some groups of migrants and refugees (80, 81). These patterns have been attributed to the restrictive norms and attitudes to alcohol that refugees and migrants bring from their country of origin, particularly those with a Muslim background, where alcohol intake is culturally prohibited (12, 82, 83).

The socioeconomic circumstances of migrants and refugees have also been associated with poor mental health and delinquency. Migrants and refugees, for example, are more likely to experience socioeconomic exclusion and live in poor, segregated neighbourhoods, which is often considered a risk factor for drug-related behaviours (77, 84, 85). Ethnically segregated neighbourhoods are usually characterized by high exposure to drug use among other youths and easy access to drugs (84, 86). Increased police surveillance in these neighbourhoods results in high rates of arrests for crimes related to illicit drugs (87).

3.4 Labour market participation

Socioeconomic adversity is related to poorer health outcomes. In fact, individuals with lower levels of education and socioeconomic status are more likely to have poor psychological wellbeing and develop substance misuse disorders. Employment status is therefore one of the most important determinants of psychiatric disorders in adults (88).

Migration researchers commonly acknowledge that employment is important for the integration of migrants and refugees into a society (89). Employment is essential because it affects many areas of life: it provides wages, psychological wellbeing and social capital, and it fosters the social inclusion of migrants and refugees (90-92). Nevertheless, compared with the native population, the vast majority of migrants and refugees living in many Western countries face great disadvantages in working life such as higher unemployment rates, poorer occupational attainment and lower income. Many often find it very difficult to obtain and hold down a healthy job (93-95). Refugees who are in the labour

market tend to have underprivileged working conditions and physically arduous and monotonous work, and consequently are at greater risk of mental health problems (96).

Researchers have identified a range of factors which determine the gaps in labour force participation and vulnerability to NEET (Neither Education, Employment or Training) between natives and migrants. These factors include lack of social networks, poorer human capital, duration of residence, country of origin, discrimination in the labour market and reason for immigration (93-95, 97-99). In the US, for example, empirical studies have indicated that wage differences between migrants and natives are due to differences in human capital, measured in terms of education and language skills (100, 101). Longer duration of residence is likely to increase employment opportunities, as immigrants' human capital and social network will gradually improve over time and the transferability of their previous investments will also increase, improving the likelihood of economic integration (97). Studies conducted in Sweden, for example, have confirmed that longer duration of residence reduces employment and wage gaps between natives and migrants – this is particularly true among non-European migrants (102-104)

Regardless of the duration of residence and level of human capital, scholars have indicated that labour market participation and its outcomes differ across migrant backgrounds, with some groups of migrants being more disadvantaged than others. This is particularly true among migrants coming from non-European countries (103). Studies conducted in Sweden and other European countries have argued that different forms of labour market exclusion based on ethnic origin could explain the existing gaps in wages, employment probabilities and NEET among migrants with non-European background and their offspring (103-108).

Refugees, particularly if newly settled, face greater disadvantages with regard to employment opportunities, wages and working conditions than other migrants (96, 97). This is probably because they have migrated for protection rather than for economic gain. Refugees tend to

have poor mental and physical health (108, 109) and lack of family support (110). They are more exposed to discrimination by employers (111, 112), have lower human capital (113), are often placed in areas with lower employment opportunities (114) and usually lack social networks (89, 99). In addition to this, their poor psychological health and the adverse circumstances of the migration process usually give rise to an underprivileged position in the labour market (114-116).

4 THEORETICAL BACKGROUND

To understand the origins of inequalities in health and social adjustment among the refugee population, it may be necessary to adopt an integrated approach that looks at individuals and structural determinants as well as the mechanisms of inequity which occur during the migration process. This chapter provides a theoretical outline of the determinants of mental health and social adjustment in young refugees.

The Commission on Social Determinants of Health (CSDH), established by the WHO, has developed a conceptual framework that provides fruitful insights into the origins of health inequalities among social groups (117). This framework has important implications for policy and research as it addresses contextual determinants of health, and the mechanisms leading to health inequalities. However, Ingleby (118) has demonstrated that the work addressing the social determinants of health has paid little attention to the role of migration and ethnicity in the creation of health inequalities. Following Ingleby, it seems that an important way forward in understanding the origins of health inequalities among migrants (and refugees in particular), is an approach that looks at individual and contextual factors in their countries of origin, transit, and destination.

The theoretical framework presented below (Figure 1) was inspired by the one that the Commission on Social Determinants of Health (CSDH) presented in their final report (117). The framework is an attempt to guide researchers and policy makers to understand the origin and the pathways leading to poor mental health and social adjustment among young refugees – the target population of this doctoral thesis. It begins with the premise that the migration process has an inherent time progression, shaped by socioeconomic and environmental conditions that are at play in the country of origin, during the migration, and in the destination country. These conditions can pose cumulative challenges

in the young refugee population, especially among those who arrive in their destination countries unaccompanied.

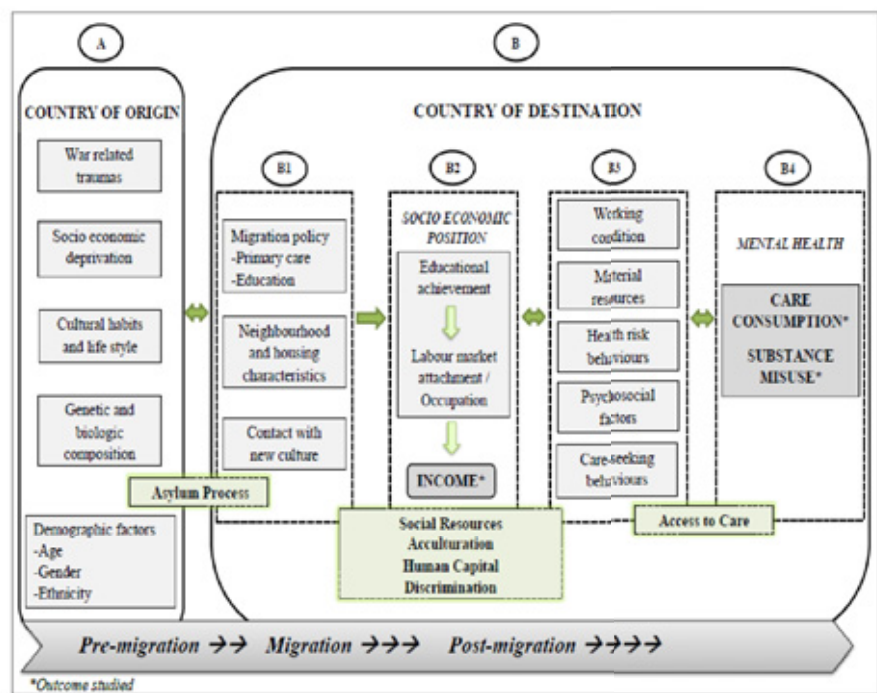


Figure 1-Determinants of Health in Young Refugees. Based on the framework developed by the CSDH, adapted by the author

The Figure 1 shows different pathways by which contextual factors occurring during the migration process could lead to inequity in mental health, substance misuse and labour market participation among young refugees. The figure indicates that in the first stage (preconditions) of the migration process (A), young refugees are exposed to a range of contextual determinants related with their country of origin, including genetic and biological composition, as well as adverse living conditions such as poverty, war related traumas, persecution and violence. These can be seen as the roots of mental health vulnerability in their destination settings (B) – although they could be expected to differ depending on factors such as age, gender and ethnicity. Asylum-seekers whose applications are accepted (B1) encounter integration policies that deter-

mine their access to education, primary health care and living conditions such as neighbourhoods and housing characteristics. These integration policies may differ according to whether the refugee is accompanied or unaccompanied. Newly arrived young refugees are also confronted with new social norms, which can result in culture clashes and the experience of discrimination – and thereby additional stress. Acculturation may also stimulate risky health behaviours with regard to legal and illicit substances that are at similar levels to those of the host society.

The above figure furthermore suggests that the socio-environmental and policy context for newly arrived young refugees is crucial in determining their short and long-term socio-economic position (B2) and health outcomes (B4) through, for example, material resources and working conditions (B3). This is in line with the pathway outlined by the CSDH.

If one considers income to be an indicator of SEP (119), the socio-economic position of young refugees may be determined by their level of education. This is because educational achievement is important for working life because it gives human capital that promotes employment and income. However, the pathway linking educational achievement and income may differ according to refugee status (accompanied or unaccompanied), ethnic background, gender and social class through the mechanisms of discrimination, social resources and level of human capital. The socio-economic conditions of the refugee population might affect their living conditions (B3), depending on their level of acculturation, discrimination, human capital and the social resources at their disposal. These conditions can interact and act, either directly or indirectly, to affect the mental health and social adjustment of young refugees (B4). In this thesis, the mental health of young refugees is assessed by use of care services while social adjustment is reflected by substance misuse and labour market attachment.

The figure also suggests that poor mental health and social wellbeing (B4) can negatively affect the refugee population by limiting life opportunities and other material circumstances that might determine their socioeconomic position (B2) and living conditions (B3).

As mentioned above, the suggested framework of the Determinants of Health in Young Refugees has an inherent time progression. This reflects the fact that adverse life experiences that could have occurred in the refugee's country of origin, during their journey, or on resettlement, may make them highly vulnerable to poor mental health, substance misuse and employment disadvantages. Unaccompanied young refugees may be of special concern because they lack the social and emotional support from their parents and family members that may be needed to face challenges posed by adverse events originating from the migration process.

4.1 Migration process

Whether the decision to emigrate is voluntary or forced, migration always implies disturbance in people's lives. In the case of refugees, the migration process involves three distinct phases: (i) pre-migration phase (ii) the migration process itself, and (iii) post-migration phase.

The pre-migration phase includes risk factors inherited from the country of origin. Refugees are exposed to important risk factors for poor mental health, substance misuse and labour marked disadvantages such as exposure to traumas related to war, persecution, and witnessing the deaths of friends or family members. They may also have experienced different extreme socioeconomic adversity in childhood, as well as exposure to infectious agents, malnutrition and perinatal complications (5, 12, 17, 28, 29, 35, 120-122).

The migration processes itself, also called the transit phase, implies long journeys, often made in dangerous circumstances; some refugees spend long periods in refugee camps, lacking basic necessities (29, 32). Because of their fragile psychological wellbeing, for some refugees the

asylum process is likely to worsen their mental health because of uncertainties caused by the long asylum process. Many asylum seekers fear deportation to their countries of origin (123).

The post-migration phase occurring in the destination country involves a range of stressors related to resettlement challenges, such as learning new languages and culture habits. Refugees are also likely to have a poor socioeconomic position and suffer from discrimination and racism, in addition to living in deprived and unsafe neighbourhoods that are susceptible to delinquency and violence (12, 16, 17, 29, 35, 122, 124). These factors may contribute to existing distress and even generate new stressors. Resettlement poses even greater challenges to unaccompanied young refugees because they may lack the social and emotional support needed from their parents and families to cope with traumas and related challenges (39, 45).

The psychosocial factors that refugees experience in the post-migration phase are more likely to shape their lifestyle. This occurs throughout the process of acculturation. In line with Berry (6), refugees may adapt risky health behaviours similar to the host population, like the use of illicit substances. On the other hand, they may also be willing to adapt positive health-care seeking behaviours that are similar to the host society.

4.2 Acculturation

The acculturation process is a common framework advocated in many migration studies as a key to understanding the health outcomes of the migrant and refugee populations. The acculturation explanation has chiefly been used by a number of health researchers in the discourse around migrant health behaviours (125). The acculturation framework proposed by Berry (6) suggests that acculturation has two dimensions that result from contact between two or more cultures: the newly settled migrants may either maintain the cultural values brought from their countries of origin or they may also develop relationships with the host society's cultural values. Following Berry's approach, studies have

demonstrated that migrants tend to change their health behaviours and attitudes, including smoking, drinking and dietary habits, to accommodate those of the host society (126, 127).

The association between acculturation, mental health and substance misuse is complex, and empirical studies have produced mixed results (128). On the one hand, some studies have found a negative association between acculturation and substance misuse. For example, a high level of acculturation may give rise to a drinking and drug culture in the migrant population that is similar to that of the host population. On the other hand, given that acculturative stress can cause frustration and anxiety due to culture clashes and hostile socioeconomic environments, it is possible that some migrants and refugees could turn to substance misuse as a coping mechanism to deal with such stressors (129).

Studies that identify a positive association between acculturation, mental health and substance misuse suggest that acculturation brings less psychological distress and increased care utilization (130). Following Berry's thoughts, the acculturation process may result in changes in migrants' attitudes towards the acceptability and utilization of mental health care services that are similar to those of the host population (68). Because duration of residence in the host country has been defined as a proxy of acculturation (75), one might argue that refugees gradually increase their human capital and social networks over time (97), resulting in better employment opportunities.

Despite its importance in public health and migration science, the acculturation approach has been criticized by various social scientists (5, 131) because it fundamentally ignores the socio-historical contexts of the migrant population, the racialization of immigrants and the role of these factors in their socioeconomic integration (131). One suggestion is that the acculturation explanation should be broadened by taking the impact of social contexts such as social networks, neighbourhood factors, discrimination, cultural changes and immigration policy into consideration (12, 125, 131). Consequently, scholars have called for an integrative and comprehensive framework that shifts the focus up from

the individual level by providing an intersectional approach that considers contextual and structural factors within inequalities by, for example, gender, ethnicity, social class and status hierarchies.

Contextual factors in the refugee population are crucial for understanding why some groups of the vulnerable population are more disadvantaged than others, and how a combination of these factors operate at the individual and macro levels within different social structures. The following section addresses the importance of using an intersectional approach in the study of these issues.

4.3 Intersectionality

An intersectional approach to migration studies is crucial for understanding how multiple aspects of social stratification, such as migrant status, gender, ethnicity and social class hierarchies, intersect at the individual and structural levels of society and produce differences in power relations within social classes which affect health and socio-economic inequalities (132).

The intersectional approach was first introduced by black feminist scholars, as a way to study the exclusion of black women's experiences in the feminist and antiracist discourse (133). As such, sexism and racism do not operate independently, but instead interact with one another in the context of oppression. The intersectional approach has extended beyond its emergent theoretical roots and is today applied in the field of public health as an analytical framework for better understanding the processes driving health inequalities (131, 134, 135).

Society is shaped by different social identities such as power relations, racism, discrimination, sexism and homophobia, that do not act independently but are instead interrelated (132). The intersectional approach acknowledges, for example, that ethnic and gender discrimination is an important contextual and analytical element in the study of health and socioeconomic inequalities (136). To answer why inequalities in mental health, substance misuse and employment exist across migrants and refugees, the following section addresses contextual and structural factors

within the dimensions of inequality that are addressed in this doctoral thesis.

4.3.1 Ethnicity

Ethnicity denotes empirical boundaries of cultural values; it influences many aspects of mental health outcomes. Apart from the importance of genetic factors related to the country of origin, cultural values may play a role in explaining why different ethnic groups experience and perceive different psychiatric symptoms, their decision to seek psychiatric care, their participation in the labour market and different health risk behaviours. Likewise, ethnicity plays an important role in understanding how the experience and perception of racism and ethnic discrimination are important contextual factor of mental health and social adjustment.

Epidemiological studies have reported differences between different groups of migrants and refugees with regard to poor mental health (137), health care utilization (138, 139), self-reported health (12), suicide attempts (140), schizophrenia (30, 141, 142), substance misuse (72, 80) and drug arrests (143). Ethnic disparities in mental health have been explained as the interaction of differences in genetic composition, health behaviours, socioeconomic status, and structural and psychosocial factors across ethnic groups (8, 144).

What appears to be unquestionable in the discourse about ethnicity is that, unlike genetic features, ethnicity is more likely to reflect socio-cultural dimensions such as food habits, health behaviours, language, dress, rituals and norms. (7, 8, 145). In this regard, migrants and refugees arrive in their destination country bearing cultural values and lifestyles formed in their countries of origin (12). Some migrants and refugees are more likely to sustain these lifestyles in their destination countries, while others adapt new cultural values and lifestyles that are similar to those of the host population (6, 146). For example, substance misuse reported among migrants from Iran and East Africa living in the

Netherlands is believed to reflect patterns of drug use that refugees bring from their home countries (72, 78).

The low risks of alcohol-related disorders found among some groups of migrants and refugees have been explained by attitudes to alcohol intake that are formed in their home countries, which is particularly true among migrants with a Muslim background (12, 82, 83).

Ethnicity can also be correlated with genetic/biological risk factors of the aetiology of some complex health problems (147). Consanguineous marriages, for example, are a traditional practice among populations from the Middle East, North Africa and West Asia; hence, it is likely that consanguineous marriage of members of the same ethnic group increases the overall inheritable effects of genetic risk factors for health such as schizophrenia (148, 149).

4.3.2 Gender

Apart from ethnicity, the intersectional approach also recognizes gender as an important socio-cultural factor that influences health and wellbeing, through the mechanism of gender discrimination (136). Addressing gender in public health is crucial. A gender-based approach helps us to understand, for example, how gender roles in society explain differences in access to power and socioeconomic resources, that could be potential explanations of the observed gender variances in health and wellbeing (150, 151). Gender roles are also important in understanding why men are more likely than women to adopt health-related beliefs and risk behaviours that can undermine their health and wellbeing (152).

Because gender roles are socio-cultural constructions, they take place in all cultures and social classes over time and over an individual's life course (153). Therefore, the migratory process itself may affect gender relations and reinforce further forms of subordination that influence gender relations, and vulnerability to issues of mental health, substance misuse and labour market participation in their destination countries.

4.3.3 Discrimination and racism

As discussed above, intersectionality takes social and historical contexts into account to explain the complexity of an individual's experience of discrimination and racism (154). Discrimination is a socially constructed ideology of superiority that devalues individuals because of their group membership (155). Whether it occurs at the individual or structural level, discrimination has been identified as one of the most important resettlement stressors that affects the mental health and well-being of migrants and refugees (12, 156).

Scholars have argued that migrants and refugees who are treated differently or unfairly in their resettlement countries because of their colour of skin, ethnic backgrounds, religious or social characteristics are more likely to have low self-esteem and have more mental health-related disorders (157, 158). Studies of personal discrimination have shown that the perception and experience of racial discrimination is associated with increased risks of psychological distress, psychosis, depression, stress, poor self-esteem, poor self-reported health, damaging health behaviours and poor health care utilization among migrants and members of ethnic minorities (159-165).

Apart from being a direct contributor to poor mental health, discrimination can indirectly affect mental health and wellbeing through social exclusion and poor living conditions (12, 157). This may occur through institutional discrimination operating at the macro level of society. Structural discrimination is embedded within social institutions and policies and tends to be more invisible than interpersonal discrimination. It excludes migrants and ethnic minorities from equal opportunities in access to power and life opportunities (166).

Studies of structural discrimination and health have repeatedly shown that structural discrimination limits access to life opportunities through multiple pathways (12, 131, 167). For example, institutional discrimination and racism restricts socioeconomic opportunities in access to employment and education. As a result, discrimination is the key cause of ethnic-residential segregation, which further produces a vulnerable

social and physical environment that adversely affects health outcomes and health risk behaviours (155, 168). Discrimination within the police system, for example, has been seen as the reason for the persistent presence of police patrols in ethnically segregated neighbourhoods (143). Discrimination has also been associated with high rates of compulsory care detention (169), misdiagnosis (170) and ethnic disparities in criminal justice outcomes (171, 172).

4.4 Human capital

Looking at contextual and structural factors in inequalities by gender, ethnicity and social class can allow scholars to identify important mechanisms of socioeconomic adjustment in the refugee population. Employment is seen as one of the most important determinants of refugee integration in society. Employment is important because it affects multiple areas of life by providing wages, psychological wellbeing and social capital and by fostering social inclusion (90-92). However, compared with the native population, the vast majority of migrants and refugees living in many Western countries face major barriers and disadvantages in working life, including higher unemployment rates, inferior occupational attainment and lower income. Many find it very difficult to obtain and hold healthy jobs and are more likely to be in NEET- Neither Education, Employment or Training (93-95, 108).

From a theoretical and political point of view, improving education would seem to be the best way to improve employment chances and thereby improve the integration of refugees. Educational achievement in the refugee population is important because it provides skills and competencies that foster employment (173, 174). It also determines the probability of being neither employed nor in education or training – the NEET population (108).

The importance of education in working life has been examined by means of the human capital approach. The human capital theory was pioneered by Becker (175). It establishes that labour market outcomes, in terms of employment participation, occupational status and wages,

are determined by individual levels of investment in education, qualifications and experience. Knowledge of the host country's language, training, institutional rules and regulations, and welfare system are other important elements of human capital (93).

Studies conducted in the US, for example, have demonstrated that wage differences between migrants and natives may be explained by migrants' lower levels of education (100). However, the importance of human capital for employment achievement among migrants and refugees has been challenged by new findings that have repeatedly reported that the school-work transition and the payoff of educational achievement among individuals with a migrant background is lower than among natives with a comparable schooling (103-105). This suggests that to understand the importance of human capital for employment success among migrants and refugees, policy makers and scholars need to consider a range of mechanisms of exclusion that may affect the working life and subsequent health and wellbeing of this vulnerable population.

5 MATERIAL AND METHODS

Sweden has a long tradition of maintaining national registers that provide high-quality data on health and socioeconomic indicators. These registers are protected by special legislation which makes it possible to collect certain information without the personal consent of individuals (176). The Swedish national registers can be linked to each other using the unique personal identification number that follows Swedish residents from birth or immigration to emigration or death. In all the present studies, we linked information about individual's socio-demographic data held by Statistics Sweden to data about health and criminality administered by the Swedish Migration Agency of Health and Welfare, and the National Council for Crime Prevention. The quality of these registers is regularly monitored and the validity has been found to be high for most diagnoses (177). Registers and variables used in all five studies included in this thesis are listed in Table 1.

Table 1. National register sources and variables

National registers	Variables
<i>Register of the total population (RTP)</i>	Country and date of birth, date of immigration, year of emigration, residency in Sweden, year of parental immigration
<i>STATIV (longitudinal database for integration studies)</i>	Reason for immigration and country of origin (refugee population)
<i>Multi-generation register</i>	Parental country of birth
<i>LISA (longitudinal integration database for health insurance and labour market studies)</i>	Age, sex, disposable income, education and domicile, social assistance, labour market attachment and sick leave
<i>National Council for Crime Prevention</i>	Drug related offences
<i>National Cause of Death Register</i>	Deaths related to substance misuse and other deaths
<i>National Patient Register</i>	Acute alcohol intoxication, in- and out-patient care due to narcotics and alcohol related disorders, compulsory care and other psychiatric diagnoses

5.1 Study population

The study population in this doctoral thesis comprised all living individuals residing in Sweden with a personal identification number, according to the National Register of the Total Population (RTP). Thus, asylum seekers and individuals lacking an identity number were not included in any of the studies addressed in this doctoral thesis.

5.1.1 Young refugees

The refugee population was defined according to STATIV (Longitudinal database on immigration and integration), a database that links registers from Statistics Sweden, the Migration Board and the Tax Authority. The dataset contains information indicating the grounds for residence in Sweden, grouped as follows: student, employment, family ties, asylum seeker, humanitarian grounds, refugee and others. Statistics

Sweden has no individual data on asylum seekers who have not yet been granted a residence permit.

The definition of refugees according to STATIV, which was used in all the studies in this doctoral thesis, includes individuals who were granted a residence permit for the following reasons: family reunification with a refugee, humanitarian reasons, asylum seeker and refugee. This definition is grounded in Article 1 of the 1951 Geneva Convention (under Chap. 4 § 1 of the Aliens Act), relating to the Status of Refugees and the 1967 Protocol. The definition of refugee in Sweden also includes people who were persecuted on grounds of gender or sexual orientation.

In this doctoral thesis, I look particularly at young refugees who arrived in Sweden at the ages of 13 to 17, as this is the age profile of the majority of young refugees, especially unaccompanied ones. However, young refugees aged 18 to 19 years were also included, because this offers the opportunity to clarify the implications of the receiving context.

The teenage refugees were categorized as accompanied young refugees if they had obtained residency because they were refugees or related to a family member who was a refugee, according to STATIV. This definition extends to children with at least one parent in the Multi-Generation Register who had received residency in Sweden the same year or the year before the young refugee, according to the Register of the Total Population.

A proxy variable was created for unaccompanied young refugees, which includes all young refugees who arrived alone, without the company of at least one parent (or an adult who by law or custom is responsible for their care). Data on unaccompanied minors was only available in the Swedish register STATIV from 2002 onwards. This includes all children who immigrated to Sweden under the age of 18 years and who were separated from both parents and their legal/customary caregiver. Unaccompanied minors arrive in Sweden as asylum seekers. The proxy variable indicating whether young refugees were accompanied or unaccompanied was validated by a variable representing unaccompanied

and unaccompanied young refugees, according to STATIV from 2002 onwards.

5.1.2 Intercountry adoptees

Sweden has the largest population of intercountry adoptees in Europe and the highest per capita population of intercountry adoptees in the world (15). Intercountry adoptees emerged in the Swedish registers in the late 1960s in the aftermath of the Korean War. After Korea, most intercountry adoptees in Sweden come from India, Sri Lanka, Colombia, Chile and Ethiopia (14, 15).

This doctoral thesis focuses on non-European intercountry adoptees as a comparative population, as defined by the Multi-Generation Register. This includes all non-Swedish-born children with at least one Swedish adoptive parent, also according to the Multi-Generation Register. All children who were under the age of eight years when they settled in Sweden are included, as this is the most common age profile among the adopted children in Sweden. Information about country of birth, date of immigration and year of birth was obtained from the RTP.

5.1.3 Native Swedes

The native Swedish population comprises all individuals with both biological parents born in Sweden, according to the RTP. Offspring of migrants were not included in this population group.

5.2 Outcome variables

Study 1: The outcome variable was defined as having at least one register entry with the hospital-affiliated psychiatric care services with a main diagnosis of mental and behavioural disorders (according to ICD-10). Three outcome variables were defined in accordance with the Swedish national in-patient and outpatient registers held by the Swedish National Board of Health and Welfare between 2009 and 2012: (i) compulsory care, (ii) in-patient care and (iii) outpatient care. Diagnoses related to substance abuse (F10-F19) were excluded in this study because

substance misuse is treated by a separate branch of the psychiatric care system in Sweden. 2009 was chosen as the first year of the follow-up period because this was the first year that a variable indicating compulsory psychiatric care was included in the inpatient register. The main diagnoses according to ICD-10 were defined as schizophrenia and other psychotic disorders (F20-F29); affective disorders and depression (F30-F39); post-traumatic stress disorder (F43); neurotic and somatoform disorders (F40-F42; F44-F49); behavioural, mental and physiological disorders (F00-F09, F70-F79, and F80-F89); and emotional disorders (F90-F98, F99, F50-F59, F60-F69).

Study 2: The outcome variable was defined as having at least one register entry for specialist psychiatric in- or outpatient care, with a diagnosis of schizophrenia, F20-F29 (according to ICD 10) between 2005 and 2012 in the Swedish Patient Register held by the Swedish National Board of Health and Welfare.

Study 3: The first outcome variable was defined as having (i) at least one register entry for hospitalization due to substance misuse, with a diagnosis of substance use disorder according to the Swedish national inpatient and outpatient registers. Mental and behavioural disorders due to substance misuse, according to ICD-10 (F11-F19) were defined as follows: mental and behavioural disorders due to use of opioids (F11), cannabinoids (F12), sedatives or hypnotics (F13), cocaine (F14), other stimulants, including caffeine (F15), hallucinogens (F16), tobacco (F17), volatile solvents (F18), other psychoactive substances (F19). The second outcome variable was having (ii) at least one register entry for a criminal conviction related to substance misuse based on data from Swedish prosecutors and courts and from the National Police. This outcome variable includes transferring, manufacturing, acquiring for the purpose of transfer, procuring and processing, packaging, transporting, keeping, offering for sale, possessing, using or otherwise handling narcotic drugs, according to the Swedish Penal Law on Narcotics (1968:64).

Study 4: The outcome variable was defined as having at least one register entry for alcohol related medical care, with a diagnosis of an alcohol-related psychiatric or medical disorder, as well as alcohol-related mortality from 1 January 2005 to 31 December 2012. Data for alcohol-related disorders were collected from the National Patient Register and data on alcohol-related mortality were collected from the National Cause of Death register. Medical care for alcohol problems that did not involve long-term alcohol misuse, such as accidental intoxication, was excluded. The main diagnoses associated with alcohol-related disorders, according to ICD-10, were the following: alcohol-related disorder (F10); alcohol polyneuropathy (G62.1); degeneration of nervous system due to alcohol (G31.2); alcoholic myopathy (G72.1); alcohol cardiomyopathy (I42.6); alcoholic liver disease (K70); and alcoholic gastritis (K29.2).

Study 5: The outcome variable was based on a model designed for measuring labour market attachment which has previously been used in several Swedish studies (178). This model is based on information about income sources from the LISA database and categorizes the study population according to degree of labour market participation. The outcome variable was based on information from three consecutive years, in order to make the categories less heterogeneous by excluding those who are only temporarily outside the education system and the labour market.

Labour market attachment was measured for the three years following the year for which information on educational attainment was obtained. This was categorized as follows:

- (i) Core work force: includes all individuals with an annual labour market income of at least 3.5 price base amounts (PBA) for at least two of the three years
- (ii) Education: includes all individuals who during the third of the three consecutive years received student allowances and had annual earnings less than 3.5 PBA (regardless of income during the first two years).

- (iii) Insecure work force: includes all who had a labour market income of at least 3.5 PBA for no more than one year and less than 0.5 for no more than two years. Individuals receiving unemployment insurance for at least two of the three years are also included in this category.
- (iv) NEET: includes all individuals receiving disability pension or extensive sick leave: includes individuals who have received disability pension and income from sickness benefits constituting at least 25 % of annual earnings for at least two of the three years. The NEET population also includes individuals receiving any income from alternative sources and economically inactive: individuals with annual earnings of less than 0.5 PBA during at least two of the three years.

5.3 Statistical analyses

Cox proportional hazard models were used in Studies 1-4. The analyses were based on person-time and the models were tested for proportional hazard assumption; this assumption was not violated. The estimated results were presented as Hazard Ratios (H.R) with 95 % Confidence Intervals (C.I). In Study 3, incidence rates per 100, 000 person years were also estimated. The relative risks assessed in Study 5 were estimated using multinomial regression models, because this method allows multiple outcome variables. In Studies 3-5, the results were stratified by gender. The dataset used in all the studies was right censored on whatever occurred first: death, the first recorded event of interest or the end of the follow-up period. All studies applied the method developed by Weitoft et al (179) in order to minimize any possible bias caused by unrecorded migration. For example, a year without any information about household income from labour or other benefits was seen as an indicator of emigration.

Description of the study population, outcomes, methods and variables used in all five studies included in this thesis are listed in Table 2.

Table 2. Description of the study population and methods

Study	Study population	Outcomes	Covariates	Methods	Main predictors
Study 1	<p>Refugees (unaccompanied, n = 6,376 and accompanied young refugees, n = 29,081) who had lived in Sweden at least 4 years.</p> <p>Former Yugoslavian republics (n = 10,477), Horn of Africa (n = 4,093), Iran (n = 2,725), Iraq (n = 7,549), Others (n = 10,613) includes non-European refugees. The Horn of Africa included Somalia, Eritrea and Ethiopia.</p> <p>1,255,782 native Swedish-born individuals with two Swedish-born parents</p>	<p>Psychiatric care: Compulsory care, in-patient care and outpatient care with a main diagnosis of mental and behavioural disorders; excluded diagnoses associated with substance misuse: F10-F19 (ICD-10); during the period of 2009/01 to 2012/12</p>	<p>Age, Gender, Domicile and Education</p>	<p>Proportional cox regression models</p>	<p>(i) Refugee background (unaccompanied and accompanied refugees) (ii) Country/region of origin (iii) Length of residence</p>
Study 2	<p>Refugees and intercountry adoptees</p> <p>East Africa (n = 8,389), Latin America (n = 11,572)</p> <p>1,255,782 native Swedish-born individuals with two Swedish-born parents</p>	<p>Psychiatric in- or outpatient care visit, with a main diagnosis of schizophrenia: F20-F29 (ICD-10) from 2005/01/01 to 2012/12/31</p>	<p>Age, Gender, Disposable income and Domicile</p>	<p>Proportional cox regression models</p>	<p>(i) Immigration background (unaccompanied and accompanied refugees /adoptees) (ii) Region of origin</p>
Study 3	<p>Refugees (unaccompanied n = 5,686 and accompanied young refugees, n = 22,992).</p> <p>Former Yugoslavian republics (n = 9,438), Horn of Africa (n = 3,408), Iraq (n = 4,671), Iran (n = 2,358), Others (n = 7,813) includes non-European refugees. The Horn of Africa included Somalia, Eritrea and Ethiopia.</p>	<p>Hospitalization due to substance misuse, with a diagnosis of substance use disorder excluded diagnoses associated with use of alcohol (F10) Criminal conviction related to narcotics from 2005/01/01 to 2012/12/31</p>	<p>Age, Gender, Disposable income and Domicile</p>	<p>Proportional cox regression models</p>	<p>(i) Refugee background (unaccompanied and accompanied refugee) (ii) Country/region of origin (iii) Length of residence</p>

	932,953 native Swedish-born individuals with two Swedish-born parents		Age, Gender, Disposable income and Domicile	Proportional Cox regression models	
Study 4	<p>Refugees (unaccompanied, n = 4,376 and accompanied young refugees, n = 15,834)</p> <p>Former Yugoslavian republics (n = 9,776), Somalia (n = 2, 372), Middle East (8,062), including Iran and Iraq.</p> <p>1,009,023 native Swedish-born individuals with both parents born in Sweden</p>	Alcohol-related medical care, with a diagnosis of an alcohol related psychiatric or medical disorder, as well as alcohol-related mortality (F10) from 2005/01/01 to 2012/12/31			(i) Refugee background (unaccompanied and accompanied refugee) (ii) Region of origin (iii) Length of residence
Study 5	<p>Refugees (unaccompanied, n = 1,606 and accompanied young refugees, n = 4142).</p> <p>Former Yugoslavian republics (n = 948), Horn of Africa (n = 424), Iraq (n = 2,336), Iran (n = 295).</p> <p>Others (n = 1,745) included non-European refugees. The Horn of Africa included Somalia, Eritrea and Ethiopia.</p> <p>6,689 intercountry adoptees from non-western countries and 347,255 native Swedish born individuals with both parents born in Sweden.</p>	Labour market attachment (core workforce, education, insecure workforce and NEET) from 2006-2012	Age, Gender and Domicile	Multinomial logistic regression	(i) Immigration background (unaccompanied and accompanied refugees /adoptees) (ii) Level of education

6 ETHICAL CONSIDERATION

The Regional Ethics Committee in Stockholm approved this project before any records were linked (decision no. 2013/811-31/5). All data used in the five studies of this thesis were anonymous and the researchers did not have access to any personal information that could identify the individuals included in the dataset.

7 RESULTS

In the following section, I summarize the most important results from the five studies included in this doctoral thesis. This section is divided into three parts as follows:

- (I) Mental health and psychiatric care (Study 1 and Study 2)
- (II) Substance misuse (Study 3 and Study 4)
- (III) Labour market participation (Study 5)

7.1 Mental health and health care (Study 1 and Study 2)

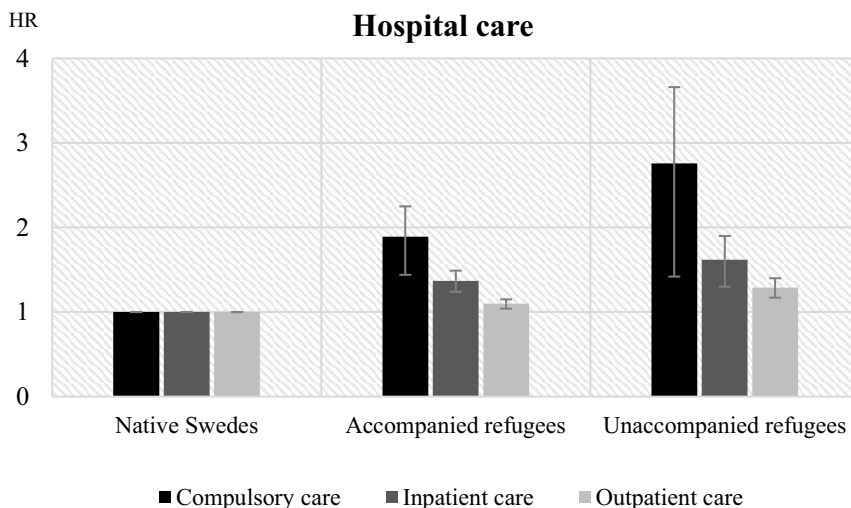
Studies 1 and 2 respond to the following research questions:

- *Do unaccompanied and accompanied young refugees have similar access to psychiatric care as the Swedish majority population? Is access to and utilization of psychiatric care services influenced by county of origin? Are there differences by socioeconomic conditions, education or duration of residence? (Study 1)*
- *Does the more favourable socioeconomic situation of adoptees protect them from the high risk of schizophrenia experienced by young refugees? Are risk factors associated with country of origin more important determinants of schizophrenia than type of immigration? (Study 2)*

7.1.1 Psychiatric care (Study 1)

In this thesis, the use of psychiatric care services in Sweden is measured by three outcomes of the use of hospital affiliated psychiatric care services - compulsory care, inpatient care and outpatient care - according to the Swedish national inpatient and outpatient registers held by the Swedish National Board of Health and Welfare. Study 1 considered the indication of at least one entry in the respective register, with a main

diagnosis of mental and behavioural disorder according to the psychiatry chapter of the 10th edition of the World Health Organization International Classification of Disorders (ICD-10).



HR=Hazard ratio

Figure 2-Cox regression models for first hospital admission/first visit to specialist psychiatric care

The Figure 2 presents estimated rates of the use of compulsory, inpatient and outpatient psychiatric care services among unaccompanied and accompanied young refugees compared with native Swedes. The models were adjusted for age, gender and domicile. The results indicate that unaccompanied and accompanied young refugees were more likely than the general Swedish population to be admitted to a psychiatric hospital. These risks were greatest for compulsory psychiatric care followed by inpatient care when adjusted for gender, age and domicile.

Country or region of origin is used as a proxy for the cultural background of the refugee population and was categorized into Former Yugoslavian republics, Horn of Africa, Iran, Iraq and others. The category “others” included South Asia, Latin America, Africa and the Middle

East. The Horn of Africa included Somalia, Eritrea and Ethiopia. Duration of residence was estimated from the date refugees received their residence permit to stay in Sweden.

Table 3 shows estimated rates of the use of compulsory, inpatient and outpatient psychiatric care services by country of origin among the refugee population. The models were adjusted for unaccompanied/accompanied, length of residence, age, gender and domicile. Young refugees from the Former Yugoslavian republics, who were the only European refugees, were the reference group. The estimated results indicate that the use of compulsory, inpatient and outpatient psychiatric care services varies by country of origin. The highest risk of compulsory and inpatient care was found among refugees from the Horn of Africa and Iran. However, the former had the lowest risk of using outpatient care, compared with the reference population. The highest risk of using outpatient care was found among young refugees from Iran who had lived in Sweden for longer than 10 years.

Table 3. Cox regression models for first hospital admission/first visit to specialist psychiatric care by refugees' country/region of origin and length of residence

	Compulsory care	Inpatient care	Outpatient care
REGION OF BIRTH	HR 95% CI	HR 95% CI	HR 95% CI
Former Yugoslavia	1	1	1
Other	1.58(0.86-2.90)	1.41(1.13-1.76)	1.03(0.92-1.14)
Horn of Africa	3.98(2.12-7.46)	1.55(1.17-2.06)	0.89(0.77-1.05)
Iraq	1.52(0.78-2.96)	1.03(0.80-1.34)	1.05(0.93-1.19)
Iran	3.07(1.52-6.19)	1.84(1.37-2.47)	1.64(1.43-1.88)
LENGTH OF RESIDENCE			
<= 10 years	1	1	1
>= 11 years	0.56(0.27-1.13)	1.24(0.92-1.67)	1.22(1.05-1.41)

HR=Hazard ratio; CI= Confidence intervals

7.1.1.1 Education

Table 4 shows the association between education and the use of psychiatric care services. The models were adjusted for age, gender and domicile. Results indicate that, in general, the use of psychiatric care increases with the level of education of the refugee population, especially

among unaccompanied young refugees. Results not shown indicate that the opposite pattern was true for the general Swedish population.

Table 4. Cox regression models for first hospital admission/first visit to specialist psychiatric care stratified by level of education

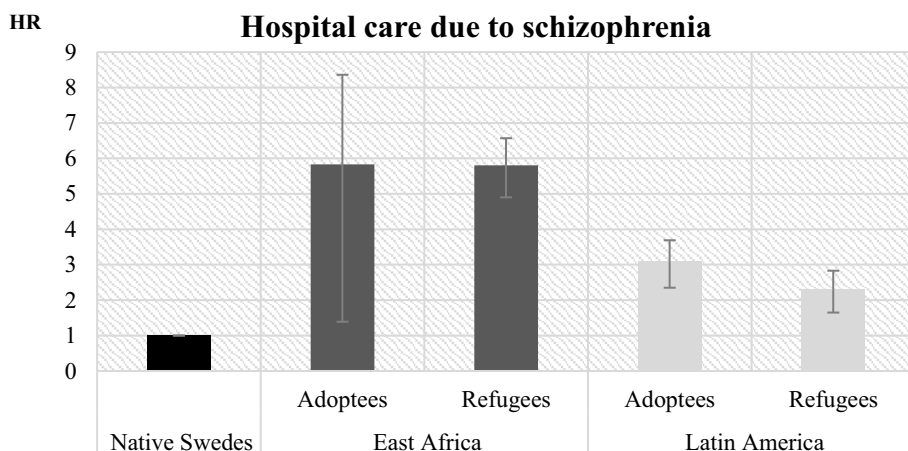
STUDY POPULATION	Compulsory care		Inpatient care		Outpatient care	
	HR 95% CI	HR 95% CI	HR 95% CI	HR 95% CI	HR95% CI	HR 95% CI
	Primary	Secondary	Primary	Secondary	Primary	Secondary
Native Swedish	1	1	1	1	1	1
Unaccompanied refugees	0.31 (0.11-0.84)	4.72 (3.06-7.29)	0.74 (0.57-0.97)	1.48 (1.14-1.92)	0.57 (0.49-0.66)	1.34 (1.19-1.51)
Accompanied refugees	0.69 (0.51-0.94)	2.04 (1.51-2.73)	0.62 (0.54-0.70)	1.35 (1.19-1.52)	0.51 (0.47-0.54)	1.14 (1.07-1.20)

HR=Hazard ratio; CI= Confidence intervals

7.1.2 Schizophrenia (Study 2)

Schizophrenia was defined as at least one registered entry for specialist psychiatric in- or outpatient care with a diagnosis of schizophrenia. Results indicate that rates of hospital admission due to schizophrenia vary by region of birth among native Swedes, intercountry adoptees and refugees from Latin America and East Africa. The rates were 3.2 percent and 2.6 percent respectively for adoptees and refugees born in East Africa. They were 1.5 percent and 1.1 percent among adoptees and refugees from Latin America, while the rate for the native Swedish population was 0.5 percent.

Figure 3 shows the hazard ratios (HRs) for schizophrenia among adoptees and refugees after adjustment for age, gender and domicile. Compared with native Swedes, the HRs for schizophrenia were some five times higher for East African intercountry adoptees and refugees and two to three times higher for Latin American intercountry adoptees and refugees. Results not presented here indicate that the risks attenuated somewhat in the refugee population when income was adjusted for, while the risk remained more or less the same for adoptees.



HR=Hazard ratio

Figure 3-Cox regression models for first hospital admission/first visit to specialist psychiatric care for schizophrenia among intercountry adoptees and refugees in Sweden

7.2 Substance misuse (Study 3 and Study 4)

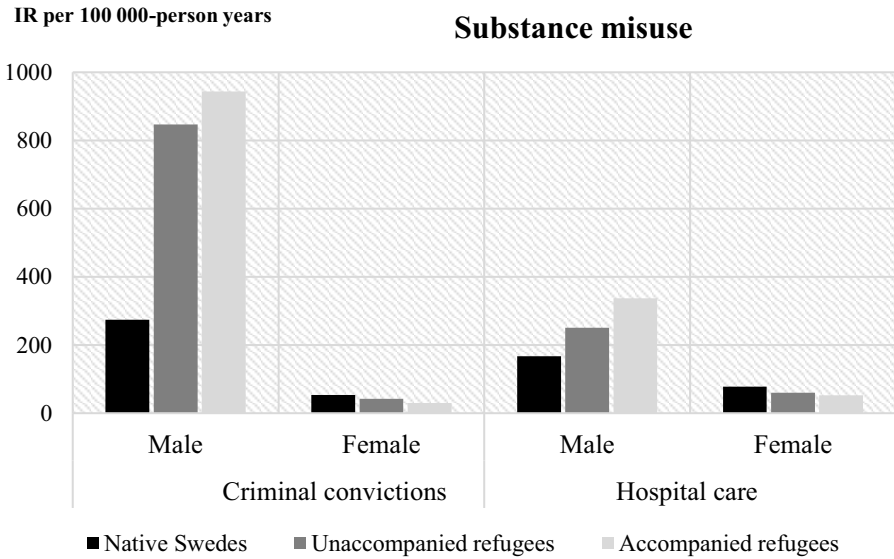
In the present thesis, substance misuse is measured by hospitalization and criminal convictions associated with narcotics (Study 3) and hospitalization due to alcohol misuse (Study 4).

- *Are there differences in the risk of criminality and hospitalization associated with substance misuse between young refugees and the Swedish majority population? (Study 3)*
- *Within the group of young refugees, are there differences in the risk of hospitalization due to substance misuse between unaccompanied and accompanied minors? (Study 3 and Study 4)*

7.2.1 Hospital care and criminality related to substance misuse (Study 3)

The figure below shows incidence rates per 100,000-person years. The incidence rates for criminal convictions among unaccompanied and accompanied male refugees were almost three times higher than for native

Swedes. In contrast, native Swedish females had a higher incidence rate for criminal convictions than unaccompanied and accompanied young female refugees. The incidence rates for hospital care among unaccompanied and accompanied male refugees were about twice as high as for Swedish males. The incidence rate for hospital care was lower for female refugees than for Swedish females.

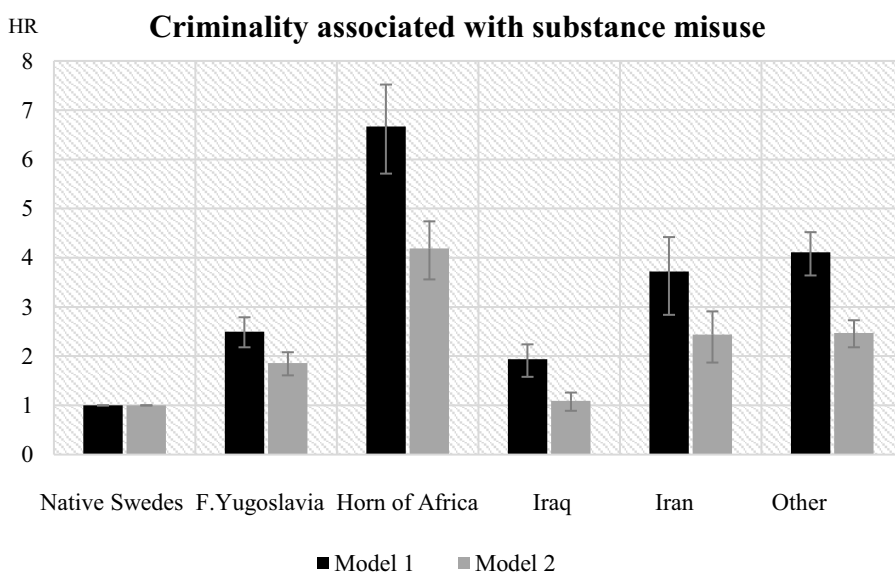


IR= Incidence rate

Figure 4-Incidence of criminal convictions and hospital care due to sub-stance misuse in male and female refugees and Swedish-born peers

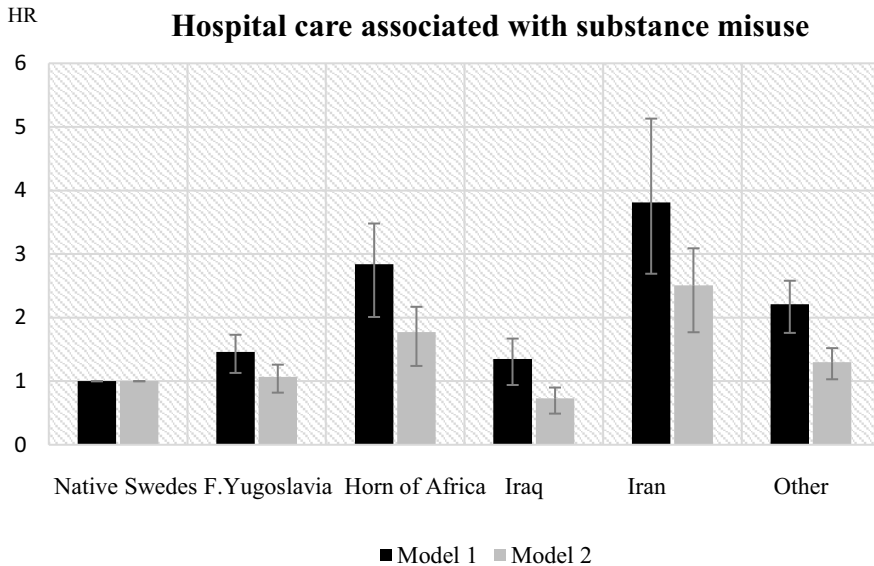
Gender stratified cox regression models of hospital care and criminality associated with substance misuse among unaccompanied and accompanied refugees by length of residence indicate that, compared with native Swedish males, the HRs for criminal conviction were about five times higher for unaccompanied, and about four times higher for accompanied male refugees with a period of residence longer than 10 years. The risks were slightly lower for hospital care, after adjustment for age and domicile. These risks were attenuated when income was adjusted for. In general, the accompanied and unaccompanied female refugees had lower risks of criminal convictions and hospital care than their Swedish peers.

Figures 5 and 6 indicate that, compared with native Swedish males, male refugees from the Horn of Africa and Iran had the highest HRs for criminal convictions and hospital care associated with substance misuse, after adjustment for age and domicile. Adjusting for income reduced the risks considerably. Results not shown here suggest that the risks of hospital care and criminality due to substance misuse were generally lower among female refugees than among native Swedish females. Young female refugees from Iran had about twice the risk of hospitalization compared with native Swedish females, although this risk disappeared in the fully adjusted model.



HR= Hazard ratio

Figure 5-Cox regression models of criminality associated with substance misuse in young male refugees by specific country of origin (narcotics)



HR= Hazard ratio

Figure 6-Cox regression models of hospital care associated with substance misuse in young male refugees by specific country of origin (narcotics)

7.2.2 Hospital care due to alcohol related disorders (Study 4)

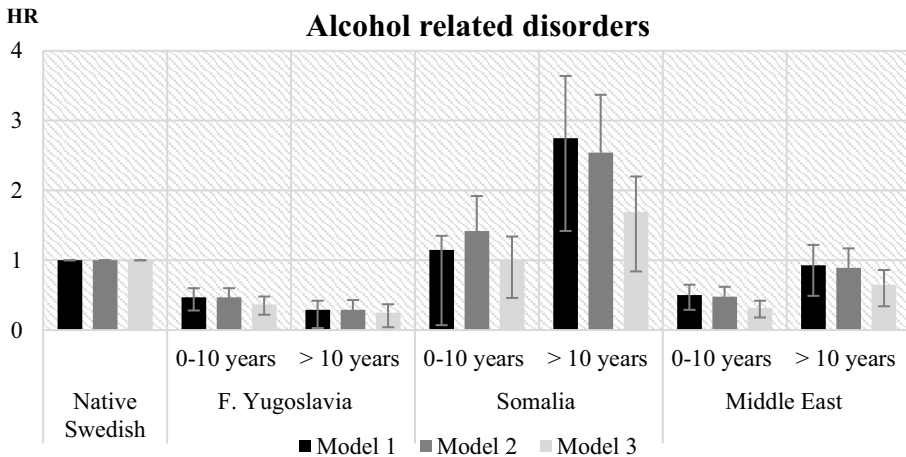
The Table 5 shows differences in the risk of hospital admission for alcohol related disorders among young unaccompanied and accompanied refugees from Somalia, the Middle East (Iran and Iraq) and Former Yugoslavia after adjustments of age and domicile in Model 1. Gender and region of origin were added in Model 2. Finally, income was added in Model 3. The risk was higher among unaccompanied refugees than among accompanied refugees when adjusted for age and domicile. Young refugees from Somalia had a four times higher risk of being admitted to hospital for alcohol related disorders than young refugees from Yugoslavia, after further adjustments of gender and income.

Table 5. Alcohol related disorders among unaccompanied and accompanied young refugees from Somalia, the Middle East, and Yugoslavia

Hospital care due to alcohol related disorders			
REFUGEE POPULATION	HR 95 % CI Model 1	HR 95% CI Model 2	HR 95% CI Model 3
Accompanied refugees	1	1	1
Unaccompanied refugees	1.51 (1.05-2.19)	0.93 (0.62-1.38)	0.96 (0.64-1.42)
REGION OF ORIGIN			
Yugoslavia		1	1
Somalia		4.35 (2.79-6.78)	4.30 (2.71-6.81)
Middle East		1.49 (1.01-2.22)	1.45 (0.97-2.18)

HR= Hazard ratios, CI= Confidence intervals

The Figure 7 indicates that there is an association between duration of residence in Sweden and hospitalization for alcohol related disorders. A period of residence in Sweden of over ten years was linked to a higher risk of hospital admission for alcohol related disorders among young refugees from Somalia, when adjusted for age and domicile. These risks are reduced considerably when income is adjusted for (Model 3). The risk of hospitalization for alcohol related disorders was generally lower among young refugees from the Middle East and the Former Yugoslavian republics than among native Swedes.



HR= Hazard ratios

Figure 7-Rates of alcohol related disorders among refugees and native Swedes, by length of legal residence

7.3 Labour market participation (Study 5)

- *Is educational attainment associated with subsequent labour market attachment in the same way for young refugees as for intercountry adoptees and the Swedish majority population?*

The degree of labour market participation was measured for the three years following the year for which information about educational attainment was obtained. The Figure 8 shows the distribution of the categories of labour market participation for native Swedes, unaccompanied and accompanied young refugees and intercountry adoptees.

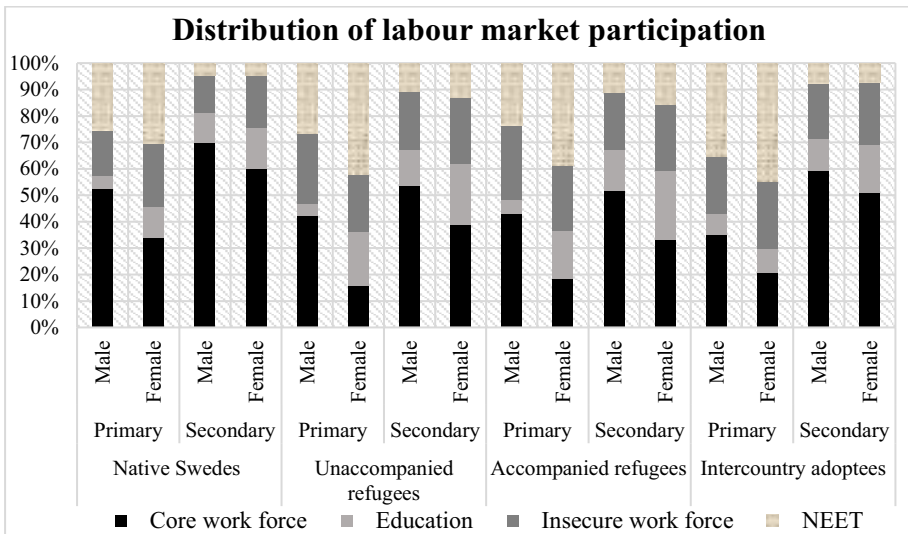


Figure 8-Percentage (%) distribution of labour market participation by level of education and gender

The figure above shows that the percentage of native Swedes with primary education who are in the core work force is comparable with the figures for young refugees with secondary education. Unaccompanied and accompanied young refugees have similar patterns of prevalence of being in the insecure work force and NEET. However, the proportion of young refugees and intercountry adoptees in NEET was higher among those with primary level of education, especially among the women.

Table 6. Differences in labour market participation by level of education among male and female native Swedes, unaccompanied and accompanied young refugees, and inter-country adoptees

Outcome variable	Native Swedes		Unaccompanied young refugees		Accompanied young refugees		Inter-country adoptees	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Core work force (base outcome)		RRR (95 % CI)		RRR (95 % CI)		RRR (95 % CI)		RRR (95 % CI)
MALE								
Education	1	1.61 (1.51-1.72)	1.15 (0.71-1.85)	2.98 (2.17-4.09)	1.20 (0.90-1.62)	2.72 (2.27-3.25)	2.17 (1.56-3.01)	1.99 (1.73-2.28)
Insecure work force	1	0.61 (0.58-0.64)	2.08 (1.63-2.78)	1.38 (1.06-1.78)	1.97 (1.68-2.31)	1.29 (1.11-1.50)	1.90 (1.51-2.38)	1.05 (0.95-1.17)
NEET	1	0.13 (0.13-0.14)	1.61 (1.26-2.06)	0.49 (0.35-0.70)	1.17 (1.00-1.38)	0.44 (0.36-0.53)	2.08 (1.70-2.54)	0.27 (0.23-0.31)
FEMALE								
Education	1	0.75 (0.70-0.78)	4.19 (2.92-5.99)	1.91 (1.43-2.57)	2.81 (2-16-3-66)	2.28 (1.95-2.68)	1.29 (0.86-1.90)	1.01 (0.90-1.13)
Insecure work force	1	0.47 (0.45-0.49)	2.34 (1.65-3.34)	1.06 (0.80-1.42)	2.00 (1.56-2.55)	1.11 (0.95-1.30)	1.76 (1.30-2.36)	0.65 (0.59-0.72)
NEET	1	0.08 (0.08-0.09)	3.32 (2.41-4.60)	0.40 (0.29-0.58)	2.40 (1.91-3.01)	0.55 (0.46-0.66)	2.46 (1.88-3.21)	0.16 (0.14-0.19)

RRR: Relative risk ratios; CI= Confidence intervals

Table 6 reports the relative risk ratios (assessed by multinomial regression) of the different labour market attachment for male and female separately, using core workforce as the reference outcome, among young refugees, intercountry adoptees and native Swedes, after adjustments of age and municipality. The estimated results suggest that unaccompanied and accompanied young male and female refugees had a higher risk of being in the insecure work force and NEET than native Swedes with comparable levels of education. The risk of being in the insecure work force and NEET was lower for native male and female Swedes with secondary education than for native Swedes with primary education. The risk of being in the insecure work force and NEET is in some instances similar for young refugees and intercountry adoptees. The risk of being in NEET rather than in the core workforce seems to be higher for female refugees than for male refugees. Results for each respective group's risk of being in the insecure work force and NEET (not reported here) suggest that secondary education reduces the risk of labour disadvantage among all groups – even if the reduction in the risk of being in NEET is not as large among young refugees as it is for native Swedes.

8 DISCUSSION

8.1 Summary of results

This doctoral thesis comprises five longitudinal studies designed to fill the knowledge gap about the importance of contextual factors after resettlement on mental health, substance misuse and labour market participation among young refugees who immigrate to Sweden as teenagers.

Study 1 investigates patterns of psychiatric care consumption among young refugees and native Swedes. The findings demonstrate that young refugees were more likely than native Swedes to be admitted to a psychiatric hospital for inpatient and compulsory care, but not for outpatient care. These risks were higher among unaccompanied young refugees than among accompanied ones. The longer these refugees had lived in Sweden, the more the use of outpatient psychiatric care increased. Refugees born in the Horn of Africa and Iran were most likely to undergo compulsory admission to hospital care and other forms of inpatient care. The results also demonstrate a reversed educational gradient in the use of psychiatric care by young refugees compared to the general Swedish population.

Study 2 investigates risk factors for schizophrenia in young refugees and intercountry adoptees. Results indicate that young refugees and international adoptees from Latin America and East Africa had a two to five-fold increased risk of hospital care for schizophrenia compared with native Swedes. When income was adjusted for, the risk of schizophrenia decreased somewhat in the refugee population, but not among adoptees.

Studies 3 and 4 focus on criminality and hospitalization associated with substance misuse. The results from Study 3 indicate that accompanied and unaccompanied male refugees were more vulnerable to substance

misuse (narcotics) than native Swedish males, while the opposite pattern was true among female refugees. The longer male refugees had resided in Sweden, the more the risks of hospital care and criminality related to substance misuse increased. Refugees from the Horn of Africa and Iran were most likely to be convicted for a substance related offence and undergo hospital care for substance misuse, but these risks decreased when income was adjusted for. The risk of hospital admission for alcohol misuse (Study 4) was higher among the unaccompanied young than among the accompanied. This risk was particularly high among young male refugee born in Somalia and those who had lived in Sweden for more than 10 years.

Study 5 investigates the importance of education for labour market participation. The results indicate that young unaccompanied and accompanied male and female refugees had a higher risk of being in the insecure work force and NEET than native Swedes with comparable levels of education. These risks are similar to those for intercountry adoptees. Differences in level of education within each study population suggest that a secondary education has a protective effect against being in NEET and the insecure workforce in all groups.

8.2 Concluding discussions

This section aims to discuss the main findings reported above by responding to the research questions addressed in this doctoral thesis.

Study 1 - Do unaccompanied and accompanied young refugees have similar access to psychiatric care as the Swedish majority population? Is access to and utilization of psychiatric care services influenced by county of origin? Are there differences by socio-economic conditions, education or duration of residence?

The observed patterns of health care consumption among young refugees in Sweden can be interpreted in a variety of ways. The very high rates of compulsory psychiatric care reported among young refugees from the Horn of Africa and Iran, and comparable rates of outpatient

care to the native Swedish population, suggest that young refugees may face barriers to accessing psychiatric care in the early stages of having a psychiatric disorder. Such barriers could be, for example: poor language skills (52); sociocultural factors within the refugee population, such as health beliefs, stigmatization of the health care system, recognition of mental health symptoms, and the way in which young refugees cope with stressful events (53, 59, 60); fear of being discriminated against (60-62); and low level of education and health literacy (52, 63-65). Additional barriers are lack of information about the health care system, indirect financial costs, institutional discrimination within the health care system (53, 58, 66, 67) and lack of competence in transcultural psychiatry (180-182).

The finding that patterns of usage of psychiatric care differ across the refugee population could be explained by socio-cultural differences within the refugee population which could influence self-perceived need of care (53), stigmatization of mental health symptoms (61) and different ways of coping (59). The higher rates of compulsory psychiatric care reported for certain non-European refugee populations compared with the general population may also be seen as resulting from structural discrimination embedded within social institutions (183). Racial bias in psychiatry might also play a role as it has previously been associated with clinical bias (184). It has been argued, for example, that Western psychiatrists are more likely to perceive non-white patients as dangerous (185).

Additional results suggest that living in Sweden for a long time is associated with an increased risk of seeking outpatient care. Refugees' acculturation to Swedish care seeking behaviours might explain this finding. This agrees with Berry (6) regarding the importance of the acculturation process for migrants' adoption of psychiatric help seeking behaviours that are similar to the host population. The finding that education increased the use of mental health care services by young refugees is in line with studies which suggest that health literacy can give refugees knowledge about the health care system and influence their self-perceived needs (63, 65). It may also be the case that higher levels

of education do not have the same educational payoff for refugees as for the native Swedish population. In line with this hypothesis, findings showed that patterns of psychiatric care demonstrated a reversed educational gradient among refugees compared with the general Swedish population.

Study 2 - Does the more favourable socioeconomic situation of adoptees protect them from the high risk of schizophrenia experienced by young refugees? Are risk factors associated with country of origin more important determinants of schizophrenia than type of immigration?

The higher risk of needing hospital care for schizophrenia reported for young refugees and intercountry adoptees supports the hypothesis that the risk of schizophrenia is associated with migrants' origins. These risks can be divided between those that exist in the country of origin and those in the resettlement countries. Risk factors for schizophrenia before migration include early exposure to infectious agents, malnutrition and perinatal complications (120); experiencing social adversity, war trauma, maltreatment or early parental separation (30, 121). In addition, the genetic contribution of consanguineous marriage (147) could play a certain role among refugees and adoptees from East Africa.

Post-migration risk factors are in line with theories about racial discrimination, according to which the perception of racial and institutional discrimination could contribute to socioeconomic exclusion, feelings of hopelessness, low self-esteem, anxiety and other important socio-environmental risk factors for the development of schizophrenia (163, 186-188). These factors could be more common among both adoptees and refugees from East Africa, since they have a different physical appearance than Latin Americans. Vitamin D deficiency due to the lack of sun in Sweden is another biological factor that could be at play (189). Older age at time of immigration was associated with increased risk of schizophrenia among intercountry adoptees but not for refugees. This could be associated with a longer period of exposure to certain types of deprived environments, such as in orphanages (190).

Studies 3 and 4 - *Are there differences in the risk of criminality and hospitalization associated with substance misuse between young refugees and the Swedish majority population?*

Within the group of young refugees, are there differences in the risk of hospitalization due to substance misuse between unaccompanied and accompanied minors?

Higher rates of hospitalization due to narcotics (Study 3) and alcohol misuse (Study 4) are reported among young refugees. This might be explained by the high levels of psychological distress they experience as a consequence of the migration process: war and separation from families and friends; the migration and asylum process itself; discrimination; economic worries and acculturation challenges (12, 27, 191, 192). Young refugees may therefore misuse alcohol and illicit substances through self-medication (70) as a mechanism to help them face stress related traumas, social exclusion and other painful emotions caused by the migration process (72-74). The higher vulnerability to alcohol related disorders reported among unaccompanied young refugees compared to accompanied ones (Study 4) may be linked to their twin experience of psychological distress and lack of social and emotional support from their families. This could mean that, unlike youth who arrive with their parents, they lack the social control they need to avoid adopting the drinking culture they encounter in Sweden.

Study 3 shows that there is a link between the incidence of substance misuse and the origins of the refugee population. Refugees from the Horn of Africa and Iran, for example, had a higher risk of hospitalization and criminal conviction associated with substance misuse. These risks may reflect habits of substance misuse which some refugees bring from their home countries. For instance, Khat, a fresh leafy plant that is chewed by East Africans, is not seen as an addictive substance in their original setting; these habits are maintained in their destination countries as a way to keep their traditions alive (193, 194). This could also be true among Iranian refugees, as the use of opiates and heroin are

socially accepted in Iranian society (195). The norms and attitudes refugees bring with them from their home countries are important in understanding why young refugees generally have a lower risk of hospitalization for alcohol related disorders than native Swedish peers (Study 4) – alcohol is culturally prohibited in Muslims communities, especially for women (12, 82, 83).

In line with the results reported in Studies 3 and 4, the risk of hospitalization for substance misuse increased with length of residence in Sweden. This may be explained in part by the refugees' increased acculturation to Swedish attitudes regarding psychiatric help-seeking behaviours, as Berry suggests (6). However, it is also possible that their long-term exposure to socioeconomic deprivation combined with their higher psychiatric morbidity could encourage young refugees to misuse illicit substance and alcohol (92, 98, 196, 197). Long-term socioeconomic deprivation may help to explain why young refugees from Somalia were more likely to be hospitalized for alcohol related disorders: the longer they stay in Sweden, the greater their risk.

The fact that the risks of hospitalization and criminality due to substance misuse and hospital care for alcohol related disorders reported in Studies 3 and 4 decreased when income was adjusted for suggests that adverse socioeconomic living conditions in Sweden could play an important role in increasing the risk of substance misuse among the refugee population. These findings are in line with previous studies that have reported that young migrants and refugees are more likely to have a lower income and live in deprived and segregated ethnic neighbourhoods (198, 199), where often high levels of drug related behaviours (84, 86) and increased police surveillance result in high rates of drug arrests (87).

Results indicate that young male refugees were more likely than females to misuse alcohol and other illicit substances. These results are in line with previous studies that have reported that males are more likely than females to adopt health related risk behaviours that can damage their health and wellbeing (152). The gender differences reported for

substance misuse may be rooted in gender roles that are socially and culturally constructed in the refugees' home countries. For example, conservative attitudes and the religious prohibition of substance misuse in Muslim communities may discourage women from adopting such health risk behaviours (200).

Study 5 - Is educational attainment associated with subsequent labour market attachment in the same way for young refugees as for intercountry adoptees and the Swedish majority population?

Young male and female unaccompanied and accompanied refugees have an elevated risk of being in the insecure workforce or NEET compared with native Swedes, regardless of level of education. Their social networks, needed in job hunting, are poor, which could explain the labour market disadvantage faced by young refugees in Sweden. As postulated by Granovetter (201), social networks are important sources of information about job opportunities

Apart from lacking the social networks needed for job hunting, young refugees can also be disadvantaged because of their relatively lower level of education (99). This interpretation is in line with Becker's (202) postulation regarding the role of human capital, measured in terms of educational achievement, in employment. However, the importance of educational achievement acquired in the host country for employment participation has been challenged. Some research indicates that education is less important in explaining the gaps in income and employment levels between natives and individuals with a migrant background with comparable level of education (203). This suggests that forms of ethnic discrimination might explain why young refugees have an increased risk of being in the insecure workforce or NEET. Additionally, poor mental and physical health (23, 27, 108, 109) and lack of family support (110) are important obstacles to both educational achievement and labour market participation among young refugees.

8.3 Strength and methodological considerations

The major strength of this doctoral thesis is the use of national registers covering the entire population living in Sweden during the follow-up period. These registers are linked to each other through the unique personal number, which links individuals' socio-demographic characteristics with all the outcomes addressed in the five studies included in this thesis. A further strength lies in the fact that these registers made it possible to identify accompanied and unaccompanied refugees living in Sweden. The registers allow a longitudinal approach and make it possible to adjust for socioeconomic events after resettlement and the transition over time. Moreover, these registers provide annual data on domicile, education and all sources of income in Sweden. The ability to identify the country of origin of the refugee population is an important advantage because it is an objective and stable indicator. It makes it possible to identify cultural differences in health related behaviours adopted by young refugees in their home countries and draw conclusions about important pre-migration factors that could influence their health and social adjustment in Sweden.

Beside their obvious strengths, the five studies included in this doctoral thesis have some general weakness that should be taken into consideration when interpreting the overall results. Firstly, the Swedish registers do not provide information about the actual date of immigration. Consequently, period of residence in Sweden was estimated according to when a residence permit was granted rather than the date when the person entered the country. Thus, some of the young refugees could have lived in Sweden for longer than estimated.

Secondly, the estimated variations in the use of psychiatric care and substance misuse by country of origin might reflect different health-seeking behaviours and cultural values. The use of country of birth as a proxy for ethnicity has its limitations, because individuals born in the same country might have different ethnic backgrounds. Given this limitation, the category of "others" may reflect important population heterogeneity that should be taken into consideration when interpreting the results.

Thirdly, the variable indicating whether young refugees were accompanied or unaccompanied was not available in the Swedish registers until 2002. Consequently, the definition of unaccompanied young refugee, used in four of the five studies may be problematic as this was based on data regarding age and parental year of immigration.

Fourthly, the outcome variable indicating labour market participation in Study 5 is a complex and heterogeneous category. It should therefore be interpreted with caution. It is also important to note that individuals could not be assigned to more than one labour market participation category.

Finally, the dataset used in all the studies provides no information about the mechanisms underlying the associations, such as cultural values, social support and different types of ethnic discrimination or education before immigration.

8.4 Implications for policy and practice

The results presented in this doctoral thesis have important policy implications. They provide evidence that may help policy makers to design integration policies which can improve the state of mental health and social adjustment of young refugees in Sweden.

The under-utilization of outpatient care reported for young refugees calls for policy makers to design health care policies that are sensitive to the geographical, linguistic and cultural needs of this vulnerable population.

The provision of accessible and well-coordinated primary mental health care for young refugees is essential because it prevents the further deterioration of their mental health that could lead to costly and acute hospitalizations in the long term.

The high vulnerability to substance misuse reported among young male refugees suggests that there is a need for a policy intervention that is sensitive to the cultural backgrounds of the refugee population and their socioeconomic living conditions.

Mental health problems among young refugees appear to be associated with their socioeconomic circumstances. Improving the labour market participation of young refugees is crucial, because employment is likely to lead to improvements in their living conditions and promote their wellbeing.

The aim of eradicating all forms of discrimination should be mainstreamed into all social policy areas. Discrimination is bad for health. It limits access to employment and it raises the risk of social exclusion, poor housing and poor living environments that can negatively influence mental health and encourage substance misuse.

Educational achievement has a protective effect against poor labour market participation. Policy makers should encourage the participation of young refugees in the Swedish educational system.

Given the importance of employment for the integration of young refugees into Swedish society, high priority should be given to policies that eradicate structural barriers that hinder the labour market participation of young refugees.

8.5 Future studies

The finding that some groups of young refugees have high rates of psychiatric inpatient and compulsory care but low rates of outpatient care merits further investigation to identify potential barriers to outpatient care and how to remove them.

The higher vulnerability to substance misuse reported among some young refugees seems to be associated with their cultural backgrounds and socioeconomic living conditions in Sweden. Further research is needed to identify the mechanisms behind these patterns so that effect policy and interventions can be developed.

This thesis finds that young refugees are at risk of both poor labour market participation and poor mental health, including substance misuse. It seems possible that poor mental health may be one explanation for problems on the labour market, but just as possible that unemployment leads to poor mental health. Future studies are needed to disentangle the causal pathways behind these patterns.

9 CONCLUSION

This doctoral thesis finds evidence of increased mental health vulnerability, substance misuse and poor labour market participation among young unaccompanied and accompanied refugees who arrived in Sweden in their teens. Young refugees, irrespective of whether they were unaccompanied or accompanied at the time of migration, were more likely to need compulsory and inpatient psychiatric care. They also had higher risks of hospitalization and criminality associated with substance misuse than native Swedes, especially those from the Horn of Africa and Iran. There was a discrepancy between the relative in- and outpatient care consumption among young refugees and native Swedes, suggesting that young refugees face barriers to access outpatient care in the early stages of developing a psychiatric disorder. For some refugees, the risks of hospital care and criminality associated with substance misuse increased with duration of residence in Sweden. These risks were higher among male refugees than among females. While substance misuse in some male refugees was associated with socioeconomic living conditions, the risk of schizophrenia among young refugees and inter-country adoptees was linked to risk factors from their countries of origin. In addition to poor mental health, young refugees have lower labour market participation compared with native Swedes with comparable levels of education. However, secondary education appears to be protective against poor labour market outcomes for refugees as well as for native Swedes.

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