A safe and healthy future? Epidemiological studies on the health of asylum seekers and refugees in the Netherlands
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GENERAL DISCUSSION

The main aim of this thesis is to describe the distribution of diseases and conditions among asylum seekers in the Netherlands and to analyse a number of risk factors that affect their health. Based on the results of the studies in this thesis and the scientific literature, we will explore the implications for policies and practices aimed at promoting the health of asylum seekers and refugees.

This chapter starts with an overview of the principal findings of the individual papers in section 4.1 and in Table 4.1.1. In section 4.2 we discuss several general methodological considerations with respect to the studies in this thesis. In section 4.3 we reflect on three themes that cut across the individual studies and propose focus areas for promoting the health of asylum seekers and refugees. In section 4.4, we present reflections and recommendations with respect to research. At the end of Chapter 4, we present the overarching conclusions of this thesis regarding the distribution of diseases and conditions among asylum seekers and risk factors that affect their health.

4.1 PRINCIPAL FINDINGS

Diseases and conditions
The study on mortality and causes of death reports on deaths in the total asylum-seeking population in the Netherlands during the years 2002-2005 (section 2.1). The overall mortality in these years was similar among asylum seekers and the population of the Netherlands after correction for sex and age. However, risk differences with the Dutch population varied considerably between subgroups by sex, age group, region of origin, and causes of death. Compared with the population of the Netherlands, mortality among asylum seekers was higher below the age of 40, and lower above the age of 40. Women from the combined region of ‘West, Central and Southern Africa’ below the age of 40 were found to have the highest mortality risk compared with the population of the Netherlands. The most common causes of death among asylum seekers were cancer, cardiovascular diseases, and external causes of death. Causes for which increased risks were found among male and female asylum seekers were infectious diseases (HIV, hepatitis and TB), accidents, and drowning. Among male asylum seekers suicide mortality was increased. Among female asylum seekers, maternal mortality was increased. The main conclusions of this study are that overall mortality is similar among asylum seekers compared with the general population, but that mortality is higher among asylum seekers up to 40 years of age and for infectious diseases, external causes, and pregnancy- and childbirth-related causes.
The study on suicide and suicidal behaviour among asylum seekers covers the years 2002-2007 (section 2.2). In male asylum seekers, the suicide death rate was two times higher than in the general population of the Netherlands; no difference was found among women. For asylum-seeking men and women from Europe and the Middle East/South-West Asia, the incidence of hospital-treated suicidal behaviour was high, and for men and women from Africa low compared with the reference population (city of The Hague). Health professionals knew about mental health problems prior to the suicidal behaviour for 80% of the hospital-treated suicidal behaviour cases in asylum seekers. In conclusion, compared with the general population male asylum seekers are at increased risk of suicide and several subgroups of asylum seekers are at increased risk of suicidal behaviour.

The main finding of the study on diabetes (section 2.3) is that, among both men and women after correction for age, the prevalence of recorded diabetes was approximately two times higher among asylum seekers than in the population of the Netherlands. The highest recorded prevalence ratios were found for men and women from Somalia, Sudan, and Sri Lanka. From the age of 30-39, diabetes prevalence was high among asylum seekers compared with the general population in the Netherlands. Six months after arrival, the prevalence of diabetes among asylum seekers was already higher than in the population of the Netherlands. Incidence rates of recorded diabetes were higher for asylum seekers compared with the host population throughout the stay in asylum reception. The main conclusions of this study are that asylum seekers from the majority of countries of origin are at increased risk compared with the general population in the Netherlands, and that asylum seekers from Somalia are particularly at risk.

The study on induced abortions and teenage pregnancies in 2004-2005, shows an induced abortion rate among asylum seekers that is one and a half times higher than the average in the Netherlands. Large differences were found between subgroups. High induced abortion rates were seen among women who were pregnant on arrival or who got pregnant in the first months after arrival in the Netherlands. Abortion and teenage birth rates were particularly high among asylum seekers aged 15–19 from West, Central, and Southern Africa and Central, East, and Southern Asia. The ratio of the number of induced abortions and the number of live births (abortion ratio) was also higher than the average in the Netherlands. The induced abortion ratio was particularly high among asylum-seeking women aged 30–49 from Europe and Asia. With increasing length of stay, the induced abortion rate and teenage birth rates decreased. In conclusion, the highest induced abortion and teenage birth rates were found shortly after arrival, and African and Asian teenage girls were particularly at risk.
In the study on HIV among pregnant asylum seekers (section 2.5) 79 out of 80 women who were HIV positive during their last pregnancy in asylum reception originated from sub-Saharan Africa. The HIV prevalence of 3.4% among sub-Saharan African women was much higher than the overall antenatal HIV prevalence in the Netherlands (0.04%). Only one HIV case was recorded among women from all other regions of origin; the prevalence of 0.04% was the same as overall in the Netherlands. The highest HIV prevalence was found for women from Rwanda (17.0%), and Cameroon (13.2%). HIV prevalence rates were highest among women in reception without a male partner, and UMAs. In conclusion, HIV prevalence among pregnant asylum seekers was high in women from sub-Saharan Africa, but not in women from other regions of origin. Variations in HIV prevalence between asylum seekers from African countries showed parallels with variations in HIV prevalence rates between the African countries of origin.

**Risk factors for the health of asylum seekers**

The study on the association between relocations and mental distress (section 3.1) shows that an annual relocation rate of one or more per year was associated with a more than two and a half times increased incidence of mental distress. The risk increase associated with frequent relocations was larger in children who had experienced violence and in children whose mothers had been diagnosed with PTSD or depression. No association was found between the absolute number of relocations and mental distress. The main conclusions of the study are that frequent relocations place the mental health of asylum-seeking children at risk, and that the negative effect of frequent relocations is greater in vulnerable children.

The study in section 3.2 reports on maternal risk factors for physical child abuse among asylum seekers. The study shows that, compared with other children, the relative risk (RR) for recorded physical child abuse was more than one and a half times higher in children whose mother had been exposed to violence and in children whose mother had been diagnosed with PTSD or depression. The association between maternal violence exposure and physical child abuse was stronger in children of single mothers compared with children with two parents. The association with maternal violence exposure was stronger in children of single mothers compared with children with two parents. The same applies to the associations with maternal PTSD or depression. In conclusion, asylum-seeking children whose mothers have been exposed to violence or have PTSD or depression are at increased risk of physical child abuse, especially in single-mother families.

The study in section 3.3 on the relationship between PTSD and diabetes shows that asylum seekers with PTSD had a higher prevalence of diabetes compared with those
without PTSD. The effect of PTSD on the prevalence of diabetes differed between individuals with and without a diagnosis of depression. In the non-depressed group, asylum seekers with PTSD had a higher diabetes prevalence compared with those without PTSD. This was the case in both men and women. Among the individuals diagnosed with depression, however, there was no association between PTSD and diabetes. The main conclusion of this study is that history of PTSD is associated with high levels of diabetes among asylum seekers.

Table 4.1.1 gives an overview of the main conclusions and recommendations as formulated in the respective studies.

4.2 METHODOLOGICAL CONSIDERATIONS

This section addresses the general methodological considerations regarding the studies in this thesis. The methodological issues of individual studies have been discussed in Chapters 2 and 3.

The registry data that were used in the studies in this thesis had several advantages: the availability of data for large numbers of asylum seekers, the nationwide coverage, the considerable time span for which data are available, and the limited costs of data collection. Specific advantages of the database of the MOA are the availability of high-quality demographic, reception and health data for every asylum seeker and the possibility to link family-member data. The longitudinal character of this database allowed for the development of statistical models that made it possible to analyse and correct for associations with length of stay.

However, the use of registry data also comes with some limitations. The main limitation for the registry data in this thesis is that health care-based data only give insight into health problems that have been presented to health professionals. Another limitation is the absence of information on the quality and completeness of the data generated by the health professions. Furthermore data on several variables that could have had added value were unavailable or not sufficiently complete. Examples are data on the status of the asylum procedure and the lifestyle of asylum seekers.

Below, we will first discuss the factors that determine the degree to which the results of a study are true for the target population: the internal validity. Then we will discuss the external validity, which is the degree to which the results of the studies can be generalised to other than the population under study.
Table 4.1.1 Overview of the main conclusions and recommendations of the studies in this thesis

<table>
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<th>Section</th>
<th>Study</th>
<th>Main conclusions</th>
<th>Main recommendations</th>
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<td><strong>Chapter 2. Diseases and conditions</strong></td>
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<tr>
<td>2.1</td>
<td>Mortality and causes of death</td>
<td>Overall mortality among asylum seekers is similar to the general population. Mortality is higher among asylum seekers up to age 40 and for infectious diseases, external causes, and pregnancy- and childbirth-related causes.</td>
<td>In policies and practices, address both the causes for which asylum seekers are at increased risk compared with the general population (e.g. infectious diseases, suicide, drowning) as well as causes with large numbers of deaths (e.g. cardiovascular diseases).</td>
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<td>2.2</td>
<td>Suicide and suicidal behaviour</td>
<td>Male asylum seekers are at increased risk of suicide. Several subgroups of asylum seekers are at increased risk of suicidal behaviour compared with the general population.</td>
<td>Train health professionals and personnel of asylum-seeker centres to recognize suicide ideation and to take appropriate action.</td>
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<td>2.3</td>
<td>Prevalence and incidence of diabetes</td>
<td>Asylum seekers from the majority of countries of origin are at increased risk compared with the general population in the Netherlands. Asylum seekers from Somalia are particularly at risk.</td>
<td>Create conditions that encourage physical activity and healthy diets among asylum seekers starting shortly after arrival, and inform health professionals about the increased diabetes risk among asylum seekers.</td>
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<td>2.4</td>
<td>Abortions and teenage pregnancies</td>
<td>The highest induced abortion and teenage birth rates were found shortly after arrival. African and Asian teenage girls were particularly at risk.</td>
<td>Invest in the prevention of unintended pregnancies among newly arrived asylum seekers, especially teenage girls.</td>
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<td>2.5</td>
<td>HIV prevalence among pregnant asylum seekers</td>
<td>HIV prevalence among pregnant asylum seekers was high in women from sub-Saharan Africa but not in women from other regions of origin. Differences in HIV prevalence between asylum seekers from African countries showed parallels with variations in HIV prevalence rates in the countries of origin.</td>
<td>Offer all asylum seekers from sub-Saharan Africa a voluntary HIV test shortly after arrival in the Netherlands.</td>
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<td><strong>Chapter 3. Risk factors for the health of asylum seekers</strong></td>
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<td>3.1</td>
<td>Relocations and mental distress</td>
<td>Frequent relocations are a risk factor for the mental health of asylum-seeking children. The negative effect of frequent relocations is greater in vulnerable children.</td>
<td>Policy makers are recommended to take into account that minimizing relocations in the host country could contribute to the prevention of mental distress among asylum-seeking children.</td>
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<td>3.2</td>
<td>Risk factors for physical child abuse</td>
<td>The rate of recorded physical child abuse is higher among asylum-seeking children whose mother has been exposed to violence or has been diagnosed with PTSD or depression than among other asylum-seeking children, especially in single-mother families.</td>
<td>In policies and practices, pay special attention to the prevention and identification of child abuse in asylum-seeking children whose mothers have been exposed to violence or have mental health problems, particularly in single-mother families.</td>
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<td>3.3</td>
<td>Association between PTSD and diabetes</td>
<td>History of PTSD among asylum seekers is associated with high rates of diabetes.</td>
<td>Consider an integrated approach for the reduction of stress and mental health problems in the prevention and treatment of diabetes among asylum seekers.</td>
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**Internal validity**

The use of nationwide health service data has a number of strengths with respect to internal validity. The risk of selection bias, (which may threaten internal validity), was minimal as the use of health service data allowed for the inclusion of the full target population in the studies. In addition, the completeness and validity of the demographic and reception data were good, especially for the data from the MOA database.

There are also concerns associated with the use of health service data with respect to the internal validity. The main concern is that cases may have been missed. Reasons for this may be the absence of symptoms, not seeking health care, not being diagnosed or not being recorded as such. Consequently, the incidence and prevalence rates are likely to be underestimations of the actual rates. It is difficult to estimate the level of underestimation and to indicate whether the underestimation may have differed between the asylum-seeking population and the reference population, or differed between subgroups of asylum seekers. This issue has been discussed for the individual studies.

Another aspect that may have influenced the internal validity of the results, relates to length of stay. Several studies in this thesis showed an association between length of stay and the occurrence of the disease or condition. As shown in the study on diabetes, for example, length of stay was also associated with region of origin, and has influenced the comparability between the countries of origin. The longitudinal analysis allowed comparison with correction or length of stay. However, in studies in which length-of-stay data were not available (such as the mortality and suicide studies), length of stay may have influenced the comparisons.

**External validity**

The generalisability of the results of our studies to asylum-seeking populations in the Netherlands in later years as well as to asylum-seeking populations in other countries, also needs to be considered.

Generalisation to asylum-seeking populations in the Netherlands in later years requires caution. The prevalence and incidence of diseases and conditions may be influenced by changes in for example the distribution by country of origin, and in changes in asylum, reception, and health policies. For example, the large influx of Syrian asylum seekers in 2013-2014, the decrease in the duration of the asylum procedure, changes in relocation policies, and drowning prevention may have influenced the health outcomes of asylum seekers.
The considerable similarities between asylum-seeking populations in industrialised countries with respect to countries of origin, shared background of fleeing one’s country, and the uncertainty of the asylum procedure positively influence the possibilities for generalisation. However, there are also important differences between host countries in housing conditions, duration of the asylum procedure, and access to health care, amongst others. Therefore, careful consideration is required when generalising epidemiological indicators from our studies to other countries.

However, given the considerable parallels between asylum-seeking populations, we think that even though the details may differ, the overall conclusions of our studies provide important lessons for other host countries. This is illustrated by a commentary on our study on relocations in which the Australian authors emphasize the importance of the findings and generalise them to implications for policy-makers worldwide.²

4.3 REFLECTIONS AND RECOMMENDATIONS

We will reflect on three overarching themes: a good start, mental health of asylum-seeking and refugee children and noncommunicable diseases. We have extended the scope of the reflections to refugees because the health status of asylum seekers is the precursor for the health status of refugees and because there is a need for more insight into the health of refugees in the Netherlands.

A good start

‘A good start is characterized by the following: a mother who is in a position to make reproductive choices, is healthy during pregnancy, and gives birth to a baby of healthy weight, […].’

Review of social determinants and the health divide in the WHO European Region (2013)³

Available evidence suggests that asylum seekers and refugees are at increased risk of adverse pregnancy outcomes compared with the general population and compared with other migrant groups. Our study on mortality and causes of death showed a tenfold increased risk for maternal mortality (section 2.1). Furthermore, compared with the general population in the Netherlands, the risk for congenital anomalies was two and a half times increased for asylum-seeking girls; for boys the risk increase was not significant (section 2.1). In addition, in 2009-2010 the perinatal mortality among asylum seekers was twice as high as in the general population.⁴ We also found high induced abortion
rates and ratios for asylum seekers, which is indicative of a high rate of unintended pregnancies (section 2.4).

A clinical study in the Netherlands suggests that the risk for acute maternal morbidity among asylum seekers was four and a half times higher than in the general population of the Netherlands, and three and a half times higher than among other non-Western immigrant women.\textsuperscript{5} Studies in other countries have found increased risks for adverse maternal and perinatal outcomes for asylum seekers as well as refugees compared with the host population and other migrant groups.\textsuperscript{6,7} Women from Africa were found to be particularly at risk.\textsuperscript{6,7}

Explanations for the increased risk of unfavourable maternal and perinatal outcomes are sought in an accumulation of adverse factors. Risk factors that are reported to be prevalent among asylum-seeking as well as refugee women include unintended and teenage pregnancies, pregnancies in women who have already delivered five or more times, single motherhood, poor health status, history of gender-based violence, female genital mutilation, prior Caesarian sections, limited social contacts, low socio-economic status, mental health problems, language barriers, and limited health capabilities and understanding of the health care system.\textsuperscript{5-9}

Based on these characteristics, we propose three focus areas for promoting ‘a good start’ for asylum seekers and refugees.

I. The first and most fundamental focus area addresses the prevention of unintended pregnancies, teenage pregnancies, and pregnancies in women who have already delivered five or more times.

For asylum seekers and refugees limited knowledge of sexual and reproductive health, negative individual and community attitudes and behaviours towards contraception, and the often vulnerable position of asylum-seeking women are given as explanations for the increased risk for induced abortions, teenage pregnancies, and pregnancies in women who have delivered already five or more times.\textsuperscript{10-13} Family planning contributes to birth spacing, lowers infant mortality risk, reduces the number of induced abortions, and lowers maternal mortality and maternal morbidity associated with unintended pregnancy.\textsuperscript{14}

Empowerment of asylum-seeking and refugees women, men and adolescents with respect to sexual and reproductive health is needed, in order to enable them to make informed choices and to prevent unintended pregnancies.\textsuperscript{2,15-17}
We recommend investing in interventions that contribute to the empowerment of asylum seekers and refugees with respect to sexual and reproductive health.

II. The second focus area relates to the general health status of asylum-seeking and refugee women, and early identification of diseases and conditions.\textsuperscript{5,9,18-20}

The health status of women preceding a pregnancy strongly influences the outcomes of the health of the mother and the child.\textsuperscript{3,9,21} Iron deficiency anaemia, nutritional deficiencies, TB, hepatitis B, HIV infection, female genital mutilation, exposure to sexual violence, and mental health problems are diseases and conditions that negatively influence the health outcomes of asylum seekers and refugees.\textsuperscript{5,9,18-20} Some of these diseases and conditions are more prevalent in asylum-seeking and refugee women in general (e.g. anaemia, nutritional deficiencies, and mental health problems) and others have been reported to be increased in women from a selection of countries of origin (e.g. HIV and female genital mutilation).\textsuperscript{9,18,19,22-24}

Whereas in the Netherlands newly arrived asylum seekers are tested routinely only for TB, guidelines in the USA and Canada recommend that all asylum seekers and refugees from endemic countries be tested shortly after arrival for TB, HIV, and hepatitis B, and that asylum-seeking and refugee women and girls of reproductive age be tested for iron deficiency anaemia.\textsuperscript{25,26} It is beyond the scope of this thesis to answer the question as to when testing is indicated (for which diseases and conditions and for which groups of asylum-seeking and refugee women).

We recommend the development of evidence-based clinical guidelines with respect to health assessment of asylum-seeking and refugee women and girls to ensure early detection of diseases and conditions that may affect their pregnancy outcomes.

III. The third focus area relates to the special factors and needs associated with the background and current context of pregnant asylum-seeking and refugee women.

Our review of the needs of pregnant asylum seekers reported several needs expressed by pregnant asylum seekers: information about pregnancy and about healthcare in the host country, health care professionals who pay attention to their problems, and mothers’ groups for social contacts and information exchange (appendix 1).\textsuperscript{27} Special needs were reported in relation to the high rates of exposure to sexual violence, female genital mutilation and HIV infection. In their evaluation of the care for pregnant asylum seekers in 2013, the Dutch Health Care Inspectorate stresses that some of the pregnant asylum-seeking women lack the ability to manage all aspects of pregnancy themselves.\textsuperscript{28}
The IGZ report states that, in light of the specific risks of pregnant asylum seekers, strong pregnancy care networks, timely transfer of pregnancy-related information and the use of professional interpreters are essential.

Although the needs of refugee women have, to our knowledge, not been studied in the Netherlands, studies abroad indicate that their needs are similar to the needs identified for asylum seekers.9,27,29 This may particularly be the case for women who have only been in asylum reception for a few months and for women who get pregnant shortly after settlement in a municipality.

We recommend increasing the awareness among professionals involved in the care of pregnant asylum-seeking and refugee women on the special needs that these women may have due to their background and current situation.

**Mental health of children**

Asylum-seeking and refugee children are a vulnerable group with respect to their mental health due to experiences in their countries of origin, during the flight, and also after arrival in host countries.30-33 A few studies in the Netherlands provide insight into the level of mental health problems among asylum-seeking children. In our study on the association between mental distress and relocations, we found that for more than half of the asylum-seeking children at least one of the conditions under the composite variable mental distress had been recorded (section 3.1). A strengths and difficulties questionnaire (SDQ)-based study showed high prevalence rates of psychosocial problems among asylum-seeking children in the northern part of the Netherlands: the parental SDQ showed an elevated score for nearly 40% of the children, the teacher SDQ for nearly 25% of the children.33

Epidemiological studies on the mental health of accompanied refugee children have, to our knowledge, not been carried out in the Netherlands. The few studies that have been done in other countries show considerable improvements in the mental health of refugee children with length of stay.31,34-36 The studies illustrate the remarkable resilience of asylum-seeking and refugee children to the effects of war.30,31,37 However, the studies also show that years after arrival, mental health problems are still more prevalent than in the general population.32,36

With respect to the mental health of asylum-seeking and refugee children, we propose two focus areas:
I. The first focus area relates to reception and resettlement conditions associated with the mental health of asylum-seeking and refugee children.

Our longitudinal study shows that frequent relocations between asylum-seeker centres are associated with an increased likelihood of mental distress (section 3.1). Adverse effects have also been reported for the long-drawn-out uncertainty associated with long asylum procedures. Furthermore, several studies report that children who have family members who have had to stay in the country of origin are more likely to have mental health problems. This implies that quick family reunification will contribute positively to the health of asylum-seeking and refugee children. Evidence suggests that in children with an accumulation of adversities, the effects of adverse factors are larger.

This evidence implies that asylum and resettlement policies may have considerable impact on the mental health of asylum-seeking and refugee children.

We recommend that policy makers take into account that reduction of relocations, rapid resolution of asylum claims and quick family reunification will positively contribute to the mental health and development of asylum seekers and refugees.

II. The second focus area relates to the association between parental mental health and the mental health and development of asylum-seeking and refugee children.

Parental support is one of the strongest protective factors for the mental health of asylum-seeking and refugee children. Parents with mental health problems are less able to provide parenting support which poses a threat to the social and emotional development of their children. Our studies on mental distress in children and physical child abuse illustrate the increased risks for children of mothers with mental health problems (section 3.2 and 3.3). In our study on the effect of relocations, asylum-seeking children whose mother had been diagnosed with PTSD or depression were nearly twice as likely as other children to have a record of mental distress ($RR = 1.81; 95\% CI 1.53-2.13$, unpublished data). The study also showed that the negative impact of relocations was stronger in children whose mother had been diagnosed with PTSD or depression (section 3.1). Especially the children of single mothers who had been diagnosed with PTSD or depression were at higher risk of recorded physical child abuse. In a study by others, asylum-seeking children in the Netherlands whose mother had mental health problems were four times more likely to have elevated SDQ-levels.

To our knowledge, no studies have been carried out on the mental health of refugee children who are in the Netherlands with parents. Studies in other countries, though,
show a similar influence of parental mental health problems for refugee children as observed in asylum-seeking children.31,32,40

The high rates of mental health problems among adult asylum seekers and refugees (e.g. rates of PTSD are reported to be ten times higher compared with the general population), imply that many asylum-seeking and refugee children will be at risk of adverse effects of parental mental health problems.41-43 Early detection of families where parental mental health problems are a threat to the health and development of their children, is important in order to prevent onset and aggravation of mental distress in asylum-seeking and refugee children.

In light of the importance of early detection preventive child health assessments (JGZ) and the vulnerability of asylum-seeking children, the assessments follow an intensified schedule (like for children attending special needs schools). For refugee children, the intensified schedule may be indicated for several reasons. First of all, the resettlement phase is known to pose considerable challenges to families who are being resettled, especially in the presence of mental health problems.44 Special processes may be needed during this phase to link refugee families to preventive health services.44

We recommend investing in the early identification of and provision of support to asylum-seeking and refugee families who are affected by mental health problems and to ensure continuity of preventive and curative care during the resettlement process.

**Noncommunicable diseases**

Very few studies on noncommunicable diseases among asylum seekers and refugees have been published. However, cancers and circulatory diseases were the cause-of-death categories with the largest numbers of deaths in our study on mortality and causes of death among asylum seekers (section 2.1). In addition, professionals who provide preventive and curative care for asylum seekers expressed concerns about the prevalence of diabetes among asylum seekers. Therefore, we believe it is important to reflect on the characteristics of asylum seekers and refugees with respect to diabetes, cardiovascular diseases, and cancer.

Asylum-seeking men and women from most countries of origin were found to be at increased risk of diabetes compared with the general population in the Netherlands (section 2.3). The study suggests that the diabetes risk may differ between countries of origin, and suggests that men and women from Somalia may be particularly at risk. A worrisome increase in the prevalence of diabetes over a period of seven years was found among asylum seekers and refugees in the Dutch longitudinal study ‘Gevlucht-
Gezond? II\(^45\) For refugees, an increased diabetes risk has been found in studies in other countries.\(^46,47\)

With respect to circulatory diseases the longitudinal study ‘Gevlucht-Gezond?’ showed a marked increase in the prevalence of hypertension between the two rounds of the study (from 13% to 24%).\(^45\) In the USA, the prevalence of hypertension among more than 13,000 Iraqi refugees aged 20 years and above who were screened before resettlement was comparable to the rate for the general population (33%).\(^48\) The age-adjusted cardiovascular disease mortality among asylum seekers did not differ significantly from the general population in our mortality and cause-of-death study.\(^49\) For refugees, a longitudinal study in Sweden reported a one and a half times higher risk for cardiovascular causes of mortality for refugee men compared with non-refugee immigrant men; for women, the statistical power was too low to draw conclusions.\(^50\) In Denmark, the cardiovascular disease mortality was lower among refugee men compared with Danish men; no significant difference was found for women.\(^51\)

Data on cancer among asylum seekers and refugees are particularly scarce. Cancer mortality among asylum seekers in the Netherlands was lower compared with the general population (section 2.1). In Denmark, the cancer mortality among refugees was lower than in native Danes; in Sweden, no difference was found with the general population.\(^50,51\) A study in the UK suggests that increased risks for specific cancers may occur in specific refugee groups, as in Vietnamese refugees mortality for stomach cancer was greatly increased.\(^52\)

Several of the factors suggested to be associated with the increased diabetes risk among asylum seekers and refugees are also risk factors for other noncommunicable diseases. We will discuss three factors that can be addressed in the host countries: overweight and obesity, physical activity, and mental health problems.

Data on overweight and obesity among adult asylum seekers and refugees have been collected in several studies in the Netherlands and abroad. The study ‘Gevlucht-Gezond?’ shows significant increases between the two rounds in the rates of overweight (from 38% to 48%) and obesity (from 9% to 13%) in refugees in the Netherlands.\(^53\) The report ‘Refugee groups in the Netherlands’ shows that, for all countries of origin included in the study (Afghanistan, Iran, Iraq and Somalia), the prevalence rates for overweight were significantly higher among refugees compared with the general population in the Netherlands.\(^54\) The highest risk difference was found for refugees from Iraq (2.4 times higher).\(^55\) Studies in other countries suggest that the rates of overweight and obesity may differ considerably between regions of origin, and that the risk difference between
certain migrant groups and the host population may continue to increase for at least 15 years after arrival.\textsuperscript{46,56}

Regarding children, a nutritional survey in the Netherlands shows a worrisome increase in the proportion of asylum-seeking children with overweight and obesity in the first years after arrival.\textsuperscript{57} The proportion of overweight and obese children increased from 15\% at arrival to 21\% after a follow-up time of 2.5 years on average.\textsuperscript{57}

Of the respondents of the first round of the study ‘Gevlucht-Gezond?’, 58\% reported a level of physical activity that met the norm of moderate physical activity for at least 30 minutes at least five days a week.\textsuperscript{53} At the time of the second round of the study seven years later, however, the percentage had decreased to 40\%. The study ‘Refugee groups in the Netherlands’ showed levels of physical activity among refugees that were unfavourable compared with the population of the Netherlands.\textsuperscript{54} The proportion that did not take part in any sports was twice as high among refugees, and the proportion that was physically inactive during winter (< 1 day/week 30 minutes moderate physical activity) was more than three times higher compared with the population of the Netherlands after correction for gender, age and educational level.\textsuperscript{55}

For children of asylum seekers and refugees, no studies on physical activity have been reported to our knowledge.

The last risk factor for noncommunicable diseases that can be addressed in the host country is mental health problems. The high prevalence of mental health problems among asylum seekers and refugees has already been addressed in earlier chapters.

With respect to noncommunicable diseases we propose two focus areas:

I. **The first focus area relates to physical activity.**

Physical activity directly and indirectly contributes to the prevention of noncommunicable diseases.\textsuperscript{58,59} The indirect pathway of physical activity passes through the reduction of stress and mental health problems.\textsuperscript{59,60}

For asylum seekers and refugees, however, developing a physically active lifestyle is not self-evident.\textsuperscript{61-63} There are several barriers to physical activity including costs, embarrassment about exercising in public, competing priorities, and the weather.\textsuperscript{64} Interventions to promote physical activity among refugee women, though, have shown a high acceptability to the women and promising outcomes.\textsuperscript{63,65,66} No studies were found that report on physical activity interventions among men and children.
We recommend the implementation of policies and interventions that encourage physical activity among asylum seekers and refugees.

II. The second focus area relates to healthy diet.

Policies that promote the consumption of foods low in saturated and trans fats, salt, and sugar (particularly in soft drinks) will lead to wide-ranging health gains, including the prevention of overweight, diabetes, cardiovascular diseases, and some cancers. Asylum seekers and refugees are faced with an overabundance of choices, but have difficulty finding foods that are familiar or that they know are healthy.

The few available studies suggest that asylum seekers and refugees are, in general, eager to learn about healthy foods available in the new country and how to prepare them. Prevention initiatives early after arrival may help recently arrived refugees retain some of their own healthy cultural habits and reduce the tendency to adopt detrimental ones. Promotion of healthy eating and drinking habits may be particularly important in families with children, as studies have shown that asylum-seeking children are particularly vulnerable to the development of unfavourable dietary habits.

We recommend investment in interventions that promote healthy eating habits among asylum seekers and refugees, with a focus on families with children.

Table 4.3.1 gives a summary of the themes, focus areas and recommendations.

4.4 REFLECTIONS AND RECOMMENDATIONS WITH RESPECT TO RESEARCH

The studies in this thesis illustrate that health care registry data can provide important insights into the health of asylum seekers, and that they can be a valuable source for the analysis of risk factors. However, the studies show that large study populations are required to be able to calculate disaggregated epidemiological indicators and analyse risk factors. With data on more than 115,000 asylum seekers, the MOA database is unique in this respect.

As indicated in the previous section, the continuous changes in the composition of the asylum-seeking population and in the asylum context may lead to incessant changes in the health profile and the risk factors for asylum seekers. The system of notifications for mortality and suicidal behaviour has continued since the changes to the health system for asylum seekers in 2009. The potential of the health information system of the GC A still needs to be explored with regard to epidemiological studies.
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With respect to refugees we want to highlight the scarcity of data on their health status and risk factors. Because of the dispersal of refugees in municipalities, data collection will need a different approach than for asylum seekers. Health registry data may offer opportunities; for refugee children, for example, using data from the electronic records of the preventive child health assessments (‘digitaal dossier JGZ’) may be considered.

Lastly we would like to note that studies are needed that provide insight into the needs, health literacy, health behaviours, and health abilities of different groups of asylum seekers and refugees. Furthermore, insight is needed into the effectiveness of interventions for asylum seekers and refugees, amongst others for the themes addressed in the previous section.

Table 4.3.1 Overview of the cross-cutting themes and recommendations to promote the health of asylum seekers and refugees

<table>
<thead>
<tr>
<th>Theme and focus areas</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A good start</strong></td>
<td></td>
</tr>
<tr>
<td>Unintended pregnancies, teenage pregnancies, and grand multiparity*</td>
<td>Invest in interventions that contribute to the empowerment of asylum seekers and refugees with respect to sexual and reproductive health.</td>
</tr>
<tr>
<td>Health status of asylum-seeking and refugee women and early identification of diseases and conditions</td>
<td>Development of clinical guidelines with respect to health assessment of asylum-seeking women and girls based on the evidence with respect to diseases and conditions for which asylum-seeking and refugee women are at increased risk.</td>
</tr>
<tr>
<td>Special factors and needs associated with the background and current context of pregnant asylum-seeking and refugee women</td>
<td>Increase awareness among professionals involved in the care for pregnant asylum-seeking and refugee women about the special needs that these women may have due to their background and current situation.</td>
</tr>
<tr>
<td><strong>Mental health of children</strong></td>
<td></td>
</tr>
<tr>
<td>Reception and resettlement conditions associated with the mental health of asylum-seeking and refugee children</td>
<td>Policy makers could take into account that reduction of relocations, rapid resolution of asylum claims, and quick family reunification will positively contribute to the mental health and development of asylum-seeking and refugee children.</td>
</tr>
<tr>
<td>Association between parental mental health and the mental health and development of asylum-seeking and refugee children</td>
<td>Invest in the early identification of and provision of support to asylum-seeking and refugee families who are affected by mental health problems and ensure continuity of preventive and curative care during the resettlement process.</td>
</tr>
<tr>
<td><strong>Noncommunicable diseases</strong></td>
<td></td>
</tr>
<tr>
<td>Physical activity</td>
<td>Implement policies and interventions that encourage physical activity among asylum seekers and refugees.</td>
</tr>
<tr>
<td>Healthy nutrition</td>
<td>Invest in interventions that promote healthy eating habits among asylum seekers and refugees, with a focus on families with children.</td>
</tr>
</tbody>
</table>

*Pregnancies of a woman who has given birth five or more times.*
4.5 MAIN CONCLUSIONS

We conclude that, overall, asylum seekers and refugees are at increased risk of adverse outcomes with respect to sexual and reproductive health, mental health and specific noncommunicable diseases compared with the general population in the Netherlands. Within these groups, there are large risk differences when stratified by gender, age, family composition, country of origin and length of stay. The risk distribution varies between diseases and conditions.

The reasons for the increased risks of health problems are diverse too, and include exposure to violence, limited health literacy, genetic predisposition, and conditions in the host country.

We also conclude that there is a serious lack of insight into the health status of and risk factors for refugees in the Netherlands. For the refugee population as well as for the asylum-seeking population, more insight is needed into the distribution of diseases and conditions, the reasons behind these distributions, and the effectiveness of interventions.

Insight into the main risks and the effectiveness of interventions may guide policies and practices that will increase the chances of a safe and healthy future for asylum seekers and refugees.
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