A prospective study of mental health among mass-evacuated Kosovo Albanians

Göran Roth

Stockholm, 2006
To

Patricia

Sara, Rebecca, Johanna, Gabriella

and the survivors that crossed my road, amazed me by their wisdom and reminded me about the indomitability of the human spirit.
ABSTRACT

Mental health outcomes among traumatised refugees have been of interest to researchers for decades. However, so far little is known about specific refugee groups such as asylum seekers and temporary mass-evacuees although they are supposed to have worse health outcomes. The aim of the thesis was to study trauma and mental health outcomes in a refugee population from Kosovo that was temporarily mass-evacuated to Sweden. Experiences from a preceding out-patient clinic study in a multicultural refugee population were used.

Subjects and methods

A sample of 402, (one in five) Kosovars that in June 1999 had participated in a mass-evacuation to Sweden and were between 18 and 65 years old was randomly selected from airline passenger lists. Two hundred and eighteen participated in the study. The study was prospective and longitudinal in design, with a baseline study and follow-ups after 3, 6 and 18 months. Self-rating instruments measuring PTSD, depression, Sense of Coherence and aggression were used. The final follow-up conducted both in Sweden and in Kosovo also included clinical diagnosing with SCID and sampling of the stress hormone cortisol in saliva.

Results

The prevalence of PTSD was 37% at baseline and increased to an extremely high prevalence (80%) at the 18 month follow-up. Participants with PTSD had significantly lower cortisol levels. Depressive symptoms and aggression followed the same pattern as PTSD while SOC-scores decreased. Women had worse outcomes both regarding PTSD and depression. Depression scores were correlated with suicidal thoughts and social dysfunction. SOC scores were negatively correlated with depression scores. Aggression was associated with torture and correlated with both PTSD and depression. Aggression scores were higher among participants with PTSD and co-morbid depression.

Conclusions

Trauma-related syndromes among refugee populations, such as PTSD, are both important and difficult to diagnose and need targeted approaches. Vulnerable groups among migrants are refugees in general and in particular asylum seekers, temporary mass-evacuees, women and those with co-morbid PTSD and depression. Pre-migration trauma and post-migration stress are both of great importance regarding mental health outcomes in migrant populations. The results have research, clinical, educational, political and ethical implications. Aggression in traumatised populations, especially its consequences, needs to be evaluated in more detail.

Key words: refugee, PTSD, depression, Sense of Coherence, aggression, trauma, cortisol, post migration stress.
LIST OF PUBLICATIONS

This thesis is based on the following papers, which will be referred to in the text by their Roman numerals.


II Roth G, Ekblad S, Ågren H. A longitudinal study of PTSD in a sample of mass-evacuated Kosovars, some of whom returned to their home country. Accepted for publication in European Psychiatry.

III Roth G, Ekblad S. A longitudinal perspective on depression and sense of coherence – in a sample of mass-evacuated adults from Kosovo. Accepted for publication in J Nerv Ment Dis.


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# CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td><strong>PROLOGUE</strong></td>
<td>1</td>
</tr>
<tr>
<td>MIGRATION AND MENTAL HEALTH</td>
<td>1</td>
</tr>
<tr>
<td>MIGRANTS IN THE WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MIGRATION IN SWEDEN</td>
<td>4</td>
</tr>
<tr>
<td>THE SITUATION FOR THE KOSOVO ALBANIANS</td>
<td>5</td>
</tr>
<tr>
<td>STUDIES OF MENTAL HEALTH AMONG REFUGEES FROM FORMER YUGOSLAVIA</td>
<td>6</td>
</tr>
<tr>
<td>THE CONCEPT OF PTSD</td>
<td>8</td>
</tr>
<tr>
<td>PTSD AND CORTISOL</td>
<td>8</td>
</tr>
<tr>
<td><strong>TRAUMA, PTSD AND DEPRESSION</strong></td>
<td>10</td>
</tr>
<tr>
<td>PTSD AND AGGRESSION</td>
<td>12</td>
</tr>
<tr>
<td><strong>TRAUMA AND SENSE OF COHERENCE</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>REFUGEE TRAUMA, POST-MIGRATION STRESS AND LONG-TERM CONSEQUENCES</strong></td>
<td>14</td>
</tr>
<tr>
<td>AIMS OF THE STUDY</td>
<td>15</td>
</tr>
<tr>
<td>METHOD</td>
<td>16</td>
</tr>
<tr>
<td><strong>SETTING</strong></td>
<td>16</td>
</tr>
<tr>
<td>Paper I</td>
<td>16</td>
</tr>
<tr>
<td>Paper II-IV</td>
<td>16</td>
</tr>
<tr>
<td><strong>DESIGN, SUBJECTS AND PROCEDURE</strong></td>
<td>16</td>
</tr>
<tr>
<td>Paper I</td>
<td>16</td>
</tr>
<tr>
<td>Paper II-IV</td>
<td>17</td>
</tr>
<tr>
<td><strong>INSTRUMENTS AND MEASURES</strong></td>
<td>18</td>
</tr>
<tr>
<td>Harvard Trauma Questionnaire</td>
<td>18</td>
</tr>
<tr>
<td>Hopkins Symptom Checklist-25 (HSCL-25)</td>
<td>19</td>
</tr>
<tr>
<td>General Health Questionnaire-28 (GHO-28)</td>
<td>19</td>
</tr>
<tr>
<td>Sense of Coherence-12 (SOC-12)</td>
<td>19</td>
</tr>
<tr>
<td>Aggression Questionnaire, Revised Swedish Version (AQ-RSV)</td>
<td>19</td>
</tr>
<tr>
<td>SCID-instrument</td>
<td>20</td>
</tr>
<tr>
<td>Cortisol sampling</td>
<td>20</td>
</tr>
<tr>
<td><strong>STATISTICAL METHODS</strong></td>
<td>20</td>
</tr>
<tr>
<td>Paper I</td>
<td>20</td>
</tr>
<tr>
<td>Paper II-IV</td>
<td>20</td>
</tr>
<tr>
<td><strong>ETHICAL CONSIDERATIONS</strong></td>
<td>22</td>
</tr>
<tr>
<td>RESULTS</td>
<td>23</td>
</tr>
</tbody>
</table>
# List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTH</td>
<td>Adrenocorticotropic hormone</td>
</tr>
<tr>
<td>AQ-RSV</td>
<td>Aggression Questionnaire, Revised Swedish Version</td>
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<tr>
<td>AVP</td>
<td>Arginine vasopressin</td>
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<tr>
<td>CRH</td>
<td>Corticotrophin-releasing hormone</td>
</tr>
<tr>
<td>DSM-IV</td>
<td>Diagnostic and Statistical Manual of Mental disorder, fourth edition</td>
</tr>
<tr>
<td>DSM-III-R</td>
<td>Diagnostic and Statistical Manual of Mental disorders, third edition, revised version</td>
</tr>
<tr>
<td>GHQ-28</td>
<td>General Health Questionnaire, 28 item version</td>
</tr>
<tr>
<td>GR</td>
<td>Glucocorticoid receptor</td>
</tr>
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<td>HPA</td>
<td>Hypothalamic-pituitary-adrenocortical</td>
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<tr>
<td>HSCL-25</td>
<td>Hopkins Symptom Checklist, 25 item version</td>
</tr>
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<td>HTQ</td>
<td>Harvard Trauma Questionnaire</td>
</tr>
<tr>
<td>PTSD</td>
<td>Posttraumatic stress disorder</td>
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<td>SCID</td>
<td>Structured Clinical Interview for DSM Disorders</td>
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<td>SOC</td>
<td>Sense of Coherence</td>
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<tr>
<td>SOC-12</td>
<td>Sense of Coherence questionnaire, 12 item version</td>
</tr>
<tr>
<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
</tr>
</tbody>
</table>
BACKGROUND

Prologue
In my work as a clinical psychiatrist, in Stockholm County since 1980, in an area with a high percentage of migrants, I have often met people with a migration/refugee background and trauma-related difficulties. I have become interested in attaining a better understanding of the mechanisms, individual as well as contextual, that cause various kinds of psychiatric problem in this group. I want to know more about how to identify, at an early preventive stage, those who are at risk of becoming ill and what treatment and other interventions are appropriate. I also want to attract the attention of the health profession and society and to prevent marginalisation of this group. I was inspired to conduct research in this field by Professor em. Bengt Jansson, MD PhD and Associate Professor Solveig Ekbland, PhD and started with a methodological study on traumatised migrants. Due to personal reasons I had to interrupt the work on my thesis. Later an opportunity arose to continue with the thesis by studying the mass-evacuated Kosovo-Albanians. Another motive for this research is the fact that I have refugees in my family; my wife had to flee her country at the age of 13 as she was on Pinochet’s death list.

Migration and mental health
The issues surrounding the mental health of migrants, in particular refugees and mass-evacuees, include several important aspects. An important component in the definition of migration is distance, in a physical sense as well as in terms of political, cultural and environmental differences between the places of departure and arrival. Some authors restrict the concept of migrant to those who cross a national border. In another classification those who cross national borders are referred to as immigrants, whereas the term migrant also includes those who move inside a country. Migrants can also be classified by their motives and the degree to which their move is voluntary [1]. Migration itself, involuntary or otherwise, is a major life event and stress factor especially when cultural and linguistic differences are encountered [2, 3]. Almost everything changes around the person who decides to emigrate. The challenges facing migrants may concern attitudes, psychosocial and cultural aspects as well as physical and biological factors. The decision to migrate is often grounded in a lack of prospects in the person’s own country and the migrant harbours great hopes about the future in
the new country. The migratory experience then results in a psychosocial process of loss and change, which is known as a grief process [1, 4].

The influence of migration on mental health has interested researchers for more than a century. In an epidemiological study in Massachusetts in 1855, Jarvis found that the proportion of “lunatics” was larger among migrants [5, 6]. Another pioneering study in the 1930s by Ödegård showed that Norwegian migrants in the USA had a significantly higher incidence of “insanity” than the native population [7]. Many subsequent studies in different parts of the world have shown increased rates of psychopathology among migrant populations [8-11]. In a Scandinavian study, Haavio-Mannila found that migrants from Italy, Yugoslavia, and Eastern Europe were admitted to psychiatric care more often than migrants from Scandinavia and Western Europe. They concluded that the geographical and cultural distances in migration are of importance for mental health [12]. In a recent review of mental health among migrants in Europe [4] it was found that migrants had the highest rate of schizophrenia, suicide, alcohol and drug abuse, consumption of psychiatric services and risk of anxiety and depression. These figures concern migration populations in general.

Refugees constitute the most important sub-population among migrants regarding mental health issues. In the UN Refugee Convention from 1951 a refugee was specified as: A person who is outside the country of his nationality and entertains a well-founded fear of persecution on account of his race, nationality, membership of a particular social group or his religious or political convictions. Important groups among refugees are the asylum-seekers and mass-evacuees that are granted only temporary permission to stay in the recipient country. They have in common that they usually fall outside existing health and social services. In many countries, for instance Sweden, adults in these populations, are only entitled to emergency health services. They also live with insecurity about the future and are marginalized in society regarding work, housing and learning the language.

Considerable similarities have been found in the manifestations of psychopathology among refugee populations. These similarities outweigh cultural and ethnic differences [13]. The most common mental disorders and symptoms among refugees are posttraumatic stress disorder (PTSD), depression, anxiety disorders, somatization, aggression and abuse of alcohol and other drugs [4, 13, 14]. The similarities in psychiatric morbidity, and the high rates of PTSD and depression, found in these populations can be explained by the high levels of trauma, such as; shortage of food, being displaced in war situations, being close to death and suffering serious injury or torture [14]. There is a continuing debate as to whether it is appropriate to assign diagnoses such as PTSD and depression to human suffering arising from mass conflicts, especially in non-western populations and to use interventions and treatments that are culturally alien to these populations. Further, that diagnosing or “medicalisation” might contribute to stigmaisation of specific groups. However, there is agreement among scientists that even if this debate is motivated by a concern for human rights, it should not lead to the neglect of the legitimate mental health needs of refugees [15]. From another perspective it may also be argued that the biological changes occurring in, for instance PTSD override this debate [16].

The ability of migrants to cope with the challenges encountered in the migration process depends on both individual and contextual factors, before during and after
migration. Quintana Guerra [17] mentions the following factors as important for psychosocial adjustment and integration in the new country: The migrant’s/refugee’s role in the native country; motive and circumstances around the migration; the resources the migrant brings with him/her; attitude to the new country; social support in the new country; attitudes towards migrants/refugees in the new country; and expectations about the new country. This has been described in the sociological literature by using the “acculturation theory”. This theory originating in anthropology [18] and used in cross-cultural psychology and sociological analyses has also been named “integration theory”. The acculturation process, if successful, results in a re-establishing of the normal bases of identity and an abandon of the migrant identity. The theory has been used in describing how migrants’ human capital, and their identity, which in turn is related to their former communities, jobs, skills, language and culture, are impaired by factors in the recipient country [19]. Further, it describes how experienced trauma might cause attitudinal changes and skew migrants’ perceptions and interpretation of social realities they encounter in the country of resettlement, thus influencing the integration process.

A summary hypothesis concerning the complex interrelations between migration and mental health is as follows: Individual factors and personality variables are of importance for the ability to cope with challenges faced by the migrant and for the risk of becoming ill in the reception country. Traumatic experiences before, during, and after the migration affect psychiatric vulnerability and the ability to adjust. Attitudes and support in the recipient country are of importance for the adjustment process and the mental health of the migrant [1].

Migrants in the world

Migration is an important aspect of human history. Three main epochs can be distinguished: a prehistoric time, when nomadic peoples roamed in search of food; a national era, when a new world economic system in the 16th and 17th centuries, based on merchant shipping and strong economic power, regarded migrants as commodities—for instance slaves from Africa; and a third age accompanying the chaos of world war and technological improvements in transportation and communication. During the 20th century migration has increased as a consequence of population development, war and political instability, economic and social injustice, and environmental problems [1].

The number of migrants world-wide has more than doubled since 1975, with most living in Europe (56 million), Asia (50 million) and Northern America (41 million) [4]. In 1990, migrants accounted for over 15% of the population in 52 countries. Most of the migrants had moved from developing to developed countries, even if migration within developed countries also increased [4]. The number of the sub-group of refugees in the world is also high. According to statistics from the United Nations High Commissioner for Refugees (UNHCR) [20], the number of persons of concern to UNHCR (refugees, asylum-seekers, stateless, internal displaced persons and other of concerns) world-wide increased steadily from about 15 million in 1990 to about 22
Background

million in 2000. This figure then dropped to 17 million in 2003 only to increase to 19.2 million at the end of 2004. However, the total population of concern to UNHCR is not reflected in these figures as an important part of the stateless populations have not been systematically identified, or statistical data is unavailable. In 2004 refugees constituted 48 per cent of the total population of concern to UNHCR. International agencies estimate that the total number of persons displaced outside their home country, internally displaced persons, asylum seekers, stateless persons, and recently returned refugees exceeded 42 million at the end of 2004 [20, 21]. Most refugees live in neighbouring countries and refugee camps. Many refugees are received in a third country and gain permission to stay permanently. Among the refugees accepted in a third country, a minority is granted asylum as political refugees, which gives certain rights. More often, they are seen as ‘de facto’ refugees, or are granted asylum for humanitarian reasons [22].

Migration in Sweden

In modern times migration to Sweden became significant at the time of World War II. When the war ended Sweden had about 200 000 refugees mostly from the Scandinavian and Baltic states [23]. In the post-war period there was an influx of mostly, qualified labourers from Italy and Germany, followed by groups of refugees from Hungary in the late sixties. The economic boom in the sixties elicited a wave of economic migrants from Finland, Yugoslavia, Greece, and Turkey. In the seventies the character of migration changed again. Refugee migration increased, while economic migration declined. Despite the Swedish entrance to the European Union (EU) in 1995, resulting in increased movements across borders inside the EU among non-refugee inhabitants in the membership states, refugees comprise the majority of migrants to Sweden [1, 22].

A total number of 873 040 persons were granted residency status in Sweden during 1980-2004. Of these 296 202 (34%) belonged to various defined refugee groups, while 423 268 (48%) were classified as relatives of these persons. During the same period the number of labour immigrants was limited to 9 106 (1%), the number of guest students was 46 199 (5%) and 78 626 (9%) were migrants from other European countries with equal rights in the labour market, according to the EES-treaty. In 2004, the total number of persons granted residency in Sweden, within the refugee regulations, were 6 140 persons. Of these 2 631 came from Asia, mostly Iran and Afghanistan. One thousand four hundred and twenty-eight came from Africa, most from Somalia. One thousand three hundred and seventy-two came from Europe, most of them from former Yugoslavia. Two hundred and four came from Latin America, most of them from Colombia. Finally, those who were stateless numbered 505 [22]. Due to the political instability, wars and ethnic cleansing in former Yugoslavia the asylum seekers and mass evacuees from this region, especially Bosnians and Kosovo Albanians, have constituted a majority of refugees coming to Sweden over the past twenty years.
The situation for the Kosovo Albanians

To understand the conflict in the Kosovo province of Serbia that has haunted the region for decades it is necessary to go back to the 14th century. Kosovo was then the centre of the Serbian empire. In 1389, the Serbs lost the land to the Ottoman Turks in a battle in the Field of Blackbirds. This battle of Kosovo is an event entrenched in the Serbian consciousness, uniting all Serbs who treasure Kosovo as their “holy land”. Over the next 500 years, neighbouring Albanians continued to leave their homeland and settle in the region. When the Serbs reclaimed Kosovo in the Balkan wars 1912 to 1913, ethnic Albanians comprised a significant portion of the population. By the 1950s they became a majority and by 1999, before the ethnic cleansing, the 1.8 million ethnic Albanians outnumbered the Serbs by nine to one in Kosovo. This fact combined with events of recent history compels ethnic Albanians to proclaim the province as their land.

Already when Marshal Tito and the communist party founded the Yugoslavian federation in 1945 Kosovo was granted self-rule. In a revised constitution in 1974 the ethnic Albanians in Kosovo were also given control over local affairs and the Albanian language was regarded equal with Serbo-Croatian. When Milosevic became president in 1989, he stripped Kosovo of its autonomy, forced Albanians from their state jobs, shut down their media and suppressed the Albanian language. This led to the creation of an unrecognised political entity offering social services for the ethnic Albanians, including their own schools, universities and news from Albanian language sources. It also led to the conflict between the Kosovo Liberation Army (established around 1991) and the Serb Army. This conflict culminated in the ethnic cleansing of the Kosovo Albanians [24]. According to Agovina [25], the ethnic Albanians, who comprise the overwhelming majority of the population in the Serbian province of Kosovo, are the victims of the worst ethnic cleansing in Europe since World War II. More than 780 000 [26] Kosovars were mass displaced. When NATO began bombing Yugoslavia in March 1999, the systematic expulsion of ethnic Albanians created a humanitarian nightmare scenario. Europe’s poorest country Albania, was currently hosting more than 430 000 refugees. At that time the Swedish Government decided to take in 5 000 refugees under the Humanitarian Evacuation Programme between April and June, 1999. The refugees were to be given temporary residence permits valid for 11 months. Even if the bombing stopped after 78 days [27] and about 90 per cent were estimated to have returned, the situation was not stable and many refugees experienced the psychological consequences of the traumatic life events that forced them from their homes [28]. The time and cost for reconstructing the area have been and will continue to be enormous. During the period of Paper II – IV in the thesis (August 1999 – March 2001), the Kosovo Albanians that were mass evacuated to Sweden were living in difficult circumstances. Their temporary permission to stay in Sweden had the consequence that they were living in a kind of vacuum, with few possibilities to be integrated and to obtain access to social and health services. Many of them wanted to stay permanently in Sweden and the government gave contradictory messages about their possibilities to do so. Those who voluntarily repatriated returned to an insecure situation with great problems regarding housing, unemployment and economy.
Background

Studies of mental health among refugees from former Yugoslavia

Several studies during the past decade have shown how populations from the former Yugoslavia, because of the civil war situation, organised violence and “ethnic cleansing”, exhibit both a high trauma level and a high psychiatric symptom level.

- In a study of Bosnians recently resettled in the USA [29] the traumatic experiences were found to be of a genocidal nature. PTSD was diagnosed among 65% of the refugees and depressive disorders in 35%. Another finding in the study was that the PTSD severity scores were correlated with both the type and the number of traumatic events experienced.

- In a 1-year follow-up study [30] of resettled Bosnians in USA it was found that the level of PTSD diagnosis and symptoms remained high, even if a notable decrease was seen. In the same study older refugees were more likely than younger ones, to have PTSD.

- In another study [31] of Bosnians resettled in the USA a clinical sample was compared with a group that had not requested psychiatric care. In the clinical group all had PTSD and in the non-clinical group 70% met the criteria for PTSD.

- In a study of Bosnian refugees living in a refugee camp in Croatia [32] the prevalence was 26% for PTSD and 39% for depression. Twenty-two per cent had both disorders and 26% had a disability. Further, the study showed that cumulative trauma, older age and also co-morbidity of PTSD and depression were associated with disability.

- In a study [33] of 126 Bosnians resettled in Australia 23% of the subjects had pure PTSD and 46% of the subjects exhibited co-morbid PTSD and depression. It was concluded that a combination of life threat and traumatic loss in particular impair psychosocial well-being and that co-morbid PTSD and depression may be associated with long-time psychosocial dysfunction.

- A study [34] of Kosovo Albanian refugees in the USA showed that 61% were likely to have PTSD. In the study higher PTSD-scores were associated with the number of traumatic events and female gender.

- In a study of Kosovo Albanian refugees conducted in the United Kingdom [35] it was found that about half showed signs of PTSD, many with co-morbid depression, and about one fifth had depression.
A large cross-sectional study [36] was conducted among Kosovo Albanians living in Kosovo, in 1999 immediately after the war. A high prevalence of trauma was found. For instance, 40% reported experiencing eight or more traumatic events. Seventeen per cent had PTSD. Low social function was connected with an increasing amount of traumatic events. Those who were older and those who had been internally displaced were at a higher risk for psychiatric morbidity. In 2000, a year after the war, the same researcher [37] carried out a new cross-sectional study on the same population. The prevalence of PTSD had then increased to 25%. At the same time scores of social functioning had improved, which in the study is explained by easier social functioning due to the rebuilding of the Kosovar civil society.

One study [38] was conducted at an emergency department in Pristina, Kosovo 2001 among non-acute patients that were ethnic Albanians. In this study it was found that 97% had experienced at least one traumatic event during the war. On average they had experienced 6.6 traumatic events. Fourteen per cent met criteria for PTSD. It was also shown that older age, female sex, less school education and the number of experienced trauma events were correlated with more PTSD symptoms.

In another Emergency Department study [39] conducted in 2002, on Serbs in two different sites in Serbia it was found that 13 % exhibited PTSD and 49% depression. Both disorders were found among 12%. Predictors for PTSD were refugee status and residence in a minority enclave in Kosovo. Predictors for depression were old age, unemployment and low social support.

A longitudinal study [40] was carried out among the three groups; civilians, refugees and soldiers, in Croatia during 1993 – 2004. The study showed that refugees had the highest level of depression in general. The authors concluded that the prolonged stressful situation of both refugees and soldiers has long-term health implications, primarily related to psychosomatic complaints.

In another large study [41] among ethnic Albanians in Kosovo more than 2 years after the war the overall prevalence of PTSD was 24%. In the study a higher number of experienced trauma events, female gender, older age, and having left Kosovo during the war were significantly associated with higher frequency of PTSD.

Finally in a meta-analysis [42] comparing mental health among refugees and non-refugees from former Yugoslavia the results indicate that refugees suffer from significantly more psychiatric problems than non-refugees.
The concept of PTSD

In the recent edition of the Diagnostic and Statistical Manual of Mental disorders, DSM-IV [43] the definition of PTSD is; a basic criterion that one has experienced a severe trauma that resulted in an intense reaction and further the presence of three clusters of symptoms, namely; intrusive or re-experiencing symptoms; avoidance symptoms; and arousal symptoms. The first cluster consists of nightmares, flashbacks, intrusive thoughts and memories about traumatic events together with emotional and physiological reactions to trauma-related stimuli. Avoidance symptoms consist of behaviours aimed to avoid reminders of traumatic events and also the development of an emotional numbing. The third category, arousal symptoms, consists of irritability or anger, exaggerated vigilance, sensitivity to stimuli and difficulties regarding sleep and concentration. The diagnosis PTSD is at hand when a trauma has been experienced and a minimum of one re-experienced symptom, three avoidance symptoms and two arousal symptoms are present, provided these symptoms have lasted for one month or more and have caused clinically significant suffering or impaired functioning.

More or less similar descriptions and concepts of trauma-related psychiatric syndromes may be found historically. In 1885 [44] “nervous shock” was described among survivors of a railway accident. They exhibited symptoms like startle-response and numbing which was suggested to be of psychosocial origin. Soldiers in the American Civil War exhibited similar symptoms and the syndrome was then named “melancholia” [45]. During World War I, the concept of “shell-shock” was described [46] among the returning soldiers. The psychiatric symptoms they exhibited were believed to be explained by changes in the central nervous system due to air blasts from shells. At the time of the Second World War there were two syndromes: the concentration camp syndrome, or KZ syndrome [47] found among survivors from the Holocaust and concentration camps and also “traumatic neurosis” [48], the latter having many similarities with PTSD. These clinically observations were described in more detail and scientifically reviewed after the Vietnam War. This resulted in the inclusion of a concept called PTSD for the first time in an edition of the Diagnostic and Statistical Manual of Mental disorders, in 1980. The concept of PTSD has since been revised twice in later editions of this manual, arriving at the current concept described above (DSM-IV). In the first revision a regrouping of symptoms was made, and some symptoms were added while the symptom of “feelings of shame” was excluded. In the latest revision the trauma criterion has been changed and now also includes the emotional reaction to the trauma event. Finally, “physiological reactions when reminded of the trauma” has been regrouped from arousal symptoms to re-experience symptoms.

PTSD and cortisol

Among the extensive biological research on stress in general and on PTSD in particular, the role of the stress hormone cortisol has been of great interest. Cortisol which is a glucocorticoid hormone plays an important, integral role in the activity of the hypothalamic-pituitary-adrenal (HPA) axis. The main object of the HPA axis and cortisol
is to protect the system from internal or external treas and stressors by mobilising energy and mediating behavioural coping responses. An activation of the HPA axis, by stressors, results in increased secretion of corticotrophin-releasing hormone (CRH) and arginine vasopressin (AVP) from the hypothalamus, which in turn stimulates the pituitary secretion of the adenocorticotrophic hormone (ACTH) which finally stimulates the secretion of cortisol from the adrenal cortex. The increased cortisol secretion then remains depending on the nature, intensity and duration of the stressor and the coping ability. Increased levels of circulating cortisol result in a negative feed back in the HPA axis at the hypothalamic and pituitary level. The hippocampus, that is rich in glucocorticoid receptors, is also involved in this negative feed back chain [49] (Figure 1).
Background

Alternations in the activity of the HPA axis have been suggested to play an important role in the development of PTSD. Several studies have shown lower levels of cortisol [50-52] and an enhanced suppression of cortisol by the glucocorticoid agonist dexamethasone [53, 54] in PTSD patients compared with both non-PTSD trauma survivors and non-traumatised persons. Also, a lowered cortisol awakening response and a disturbed circadian rhythm of cortisol, with normal levels in the morning and lower than normal levels in the evening have been found among subjects with PTSD [55, 56]. However, empirical data regarding these findings are inconsistent. In the most studied group regarding PTSD, combat Vietnam veterans, a complicated sample to study due to high rates of substance abuse, co-morbid depression and psychotropic medication use [57], both lowered, similar [58] and [59] elevated cortisol levels have been found among those diagnosed with PTSD compared with control subjects. In studies among patients with PTSD due to other traumas than combat experiences the results have also been conflicting. For instance, among female survivors of sexual abuse, enhanced cortisol suppression by dexamethasone was observed in one study [60] while elevated cortisol levels, in twenty-four hour urine samples, were found in another study [61].

In the few studies of traumatised refugee populations measuring cortisol [62, paper II] lowered concentrations have been found. In one study of refugees with trauma experiences [63] an increase in cortisol was found to be associated with distress in significant others and demands in everyday life, but not with the diagnosis PTSD. In Holocaust survivors with chronic sustained PTSD symptoms [52] lower levels of cortisol have been demonstrated.

These conflicting results might be explained by interference from co-morbidity and differences in the composition of the populations studied. Factors that are suggested to directly or indirectly contribute to a low or enhanced suppression of cortisol are the following: early life trauma, repeated and intensive stress exposure, more severe symptoms and a chronic course of PTSD [64]. Other factors that might be of importance and are known to affect cortisol include ethnicity, body mass index (BMI), age, and gender [64]. Thus, questions remain to be answered, regarding the HPA axis and PTSD. In a review [65] de Kloet et al. suggest that the role of the HPA-axis function in PTSD can be elucidated with further research assessing hormones at all levels of the axis at both baseline and in challenging conditions, and with stratified study populations.

Trauma, PTSD and Depression

The linkage between trauma, PTSD and depression, with a significant overlap in the symptoms required for diagnosis based on DSM-IV criteria, has been discussed in the literature with regard to different hypotheses. One is that PTSD is a severe variant of reactive depression [66]. Another is the opposite, i.e. that PTSD is the primary disorder, with co-morbid depression as a secondary reaction [67]. A third hypothesis is that the development of PTSD and/or depression depends on the type of preceding trauma [68]; where life threatening traumas, like torture, are more likely to result in PTSD whereas
other traumas and losses, are more linked with depression. In a study [69] of Vietnam veterans Shalev et al. found that exposure to atrocities and the intensity of torture increased the risk of PTSD but not the risk of major depression. In a study [70] of Tamil refugees and immigrants in Australia it was found that torture was the main predictor of PTSD. In another study [33] of Bosnian refugees, the traumatic event “threat to life” was found to predict PTSD. A study [71] of Cambodian refugees found the stressor “lack of finances” to be associated with major depression but not with PTSD. On the other hand, the same study showed that a greater number of war trauma experiences and a greater number of resettlement stressors were risk factors for both major depression and PTSD. Further, in a survey of traumatised Vietnamese, Mollica et al. [72] found a dose-effect relationship between cumulative torture and both PTSD and depression.

Factor analytic studies [73] and neurobiological changes support the view that PTSD is a specific diagnosis separate from depression. Hippocampal volume appears to be selectively decreased and hippocampal function impaired among PTSD patients [74]. In a study [75] of a traumatised population it was also found that the speed of language acquisition was significantly inversely related to symptom load of PTSD but not to symptom load of depression. Also, differences observed in the pattern of cortisol and the HPA axis between PTSD and depression supports the view of these two diagnoses as separate entities instead of regarding PTSD as a severe variant of depression. Depression, especially the severe form, major depression, with melancholia, is associated with an HPA axis overactivity whereas PTSD is often associated with an underactivity in the HPA axis [64]. However, increased levels of the corticotropin-releasing hormone (CRH) measured in cerebrospinal fluid (CSF), indicating a chronically activated stress response, have been seen in both diagnoses [62]. Further, the abnormalities of the HPA axis seen in major depression appear to be a state rather than a trait marker as they disappear when the depression resolves [64]. On the other hand, the less severe forms of depression, especially dysthymia, which is often associated with long-term stressors and a chronic course, might be closer linked with the diagnosis PTSD.

At the same time PTSD and depression often occur together in traumatised populations, which has been demonstrated in a diversity of trauma-affected populations [33], with the overlapping varying from 21% to 45%. In a study performed by Oquendo et al. [76] it was found that subjects with major depression and co-morbid PTSD had lower plasma cortisol levels than healthy volunteers. They also found that the subjects with major depression alone had higher plasma cortisol levels than healthy volunteers. Co-morbid PTSD and depression have severe consequences in many respects. It has been shown that the combination of the two diagnoses increases the risk for suicidal behaviour [77]. Further, Momartin et al. [33] demonstrated in a study of Bosnians resettled in Australia, that a co-morbidity of PTSD and depression is associated with long-term psychosocial dysfunction. They also found that the combination of having experienced life threats and traumatic loss leads to co-morbid PTSD and depression. From these results they raised the question whether this co-morbid pattern should be recognised as a core posttraumatic affective disorder. Continuing research about the linkage between stress, PTSD and depression is therefore of great interest for traumatised populations and not least regarding refugees.
PTSD and aggression

Feelings of irritability, hyper excitability and outbursts of anger are among the symptom criteria for PTSD. These symptoms can be understood in the perspective of loss of the affective modulation. An elevated arousal state, connected with PTSD, is likely to precipitate flight or fight reactions leading to immediate response to stimuli without assessing the meaning of the event. This makes PTSD patients prone to freeze or, alternatively, to overreact in response to provocations [78]. This can be described in psychological terms, such as presence of low-level maladaptive or immature defence mechanisms, to prevent a personality disorganisation, and non-functioning coping strategies due to traumatic experiences [79]. It can also be regarded from a biological perspective. Rapid shifts in mood and aggression indicate an association with a limbic dysfunction. Studies of the limbic structures, in particular the hippocampal structures, have suggested that patients with PTSD have altered limbic system anatomy compared with controls [80].

It is obviously of a great interest to study aggression and its consequences among traumatised populations. Research in this field has so far focused mainly on combat survivors from the Vietnam War [81] and only a few studies have been focused on aggression in traumatised refugee populations. In a study [82] of Vietnam veterans it was found that both the PTSD-diagnosis and PTSD symptom severity correlated with involvement in violent acts, such as property destruction, threats with or without weapons and physical fighting. Attitudes towards violence and dangerous weapon use have also been found to be related to PTSD among Vietnam veterans [83]. Further, it has been found that among veterans suffering from PTSD, low educational level and socio-economic status are associated with violent behaviour [84]. Finally, in this population, it has been shown that co-morbid PTSD and alcohol addiction correlates with higher aggression levels [85].

In refugee populations, the questions concerning PTSD and aggression are even more complex than in non-refugee populations. Problems concerning forced migration are added to the consequences, including PTSD, of pre- and post-migration traumas. In a study of out-patients in Norway, Lavik et al. [86] found that refugee status predicted hostility and aggression. Further, in a focus group study [87] of Ethiopian refugees in the United States, it was found that domestic violence could be described in the context of immigration, acculturation, and changes in the family and social structures. Aggression in refugee populations can result in domestic violence, but might also have consequences outside the family and on a political and structural level. The latter is illustrated in two large cross-sectional studies of traumatised ethnic Albanians in Kosovo, [36, 37]. The studies were conducted just after (1999) and a year after (2000) the war. They showed that the prevalence of hate and revenge attitudes towards the Serbs were high throughout the two studies even if they partially decreased between 1999 and 2000. In 1999, 89% of the men and 90% of the women had feelings of hatred. In 2000 these figures were 54% respectively 66%. In 1999 64% of the men and 49% of the women had a desire to carry out acts of revenge while these figures were 45% and 50% respectively in 2000. Thus increased knowledge in this area has implications for both an individual and a contextual level.
Trauma and Sense of Coherence

The sociologist Antonovsky’s construct Sense of Coherence (SOC) [88] was developed in order to understand how some people successfully cope with stress. He conceptualised his model from studying Nazi concentration camp survivors. The concept intends to explain why some individuals always tend to be oriented towards the positive end of the health -disease continuum. According to Antonovsky, a person’s capacity to cope with stressful situations is related to three core components in the concept, namely comprehensibility, manageability and meaningfulness. Comprehensibility refers to the extent to which one perceives and sees stressful stimuli as ordered, consistent and structured, rather than random, accidental and inexplicable. Manageability refers to the extent to which one believes that the resources at one’s disposal, individual or structural, are adequate to meet demands connected with a stressful situation. Finally, Meaningfulness refers to the extent to which one feels that life makes sense and that demands posed by stressful situations are challenges worth energy and commitment.

Questionnaires that measure the Sense of Coherence have been developed, validated and widely used in several populations exposed to many different kinds of psychosocial and health related stressors [89]. A relevant question regarding the applicability of this concept, for a better understanding of problems connected with traumatised populations, such as refugees, is whether SOC is a trait or a state. If it is a trait it would be relatively stable over time. Antonovsky was of the opinion that changes in SOC are rare. He hypothesised that among persons with a “strong” SOC it remains stable from their early middle age. Support for this hypothesis has been found. In a study performed in Sweden, by Nilsson et al. it was found that SOC was stable for those with initially high levels of SOC, while among the others both individual conditions and societal changes influenced their SOC [90]. On the other hand, Antonovsky also argued that changes in SOC might appear due to a new pattern of life experiences. It has also been found [91] that SOC was not stable over time after severe multiple trauma. Further, Schnyder et al. [92] argue that SOC is a relatively stable measure, although traumatic events may change a person’s world view and thus their SOC. Another question is whether a high sense of coherence leads to better resistance regarding trauma-related ill health such as depression and PTSD. Since high negative correlations between SOC and depression/anxiety are found at simultaneous assessments, it has been argued that the instruments used assess the same phenomenon, with inverse signs. Further, it is open to debate whether a low SOC has some effect on the risk of falling ill or if it is the other way around [93]. At the same time there are studies that support both the protective role of SOC and that it is a separate phenomenon. In a seven-year prospective study of 433 females [94] Kivimäki et al. found that low SOC scores had a stronger mediating effect on ill health than depression symptoms. In another prospective study Schnyder et al. [92] showed that among severely injured accident victims a significant decrease in SOC scores was found during the period following the trauma. During the same period, symptoms of anxiety and depression decreased significantly. This suggests that SOC if not merely a general measure of psychopathology, but rather a partially independent measure.
Refugee trauma, post-migration stress and long-term consequences

Research, conducted during the past decade, supports the view that both pre-migration trauma and post-migration stress factors influence mental health with long-term consequences [95, 96]. This was illustrated in a current study [97] of Cambodian refugees two decades after resettlement in the United States. All participants had been exposed to trauma before immigration and 70% had been exposed to violence after resettlement in the United States. The participants presented high rates of both PTSD (62%) and depression (51%). The co-morbidity between these diagnoses was 42%. After multivariate analysis, an association was seen between pre-migration trauma and both these diagnoses. An association was also observed between post-migration trauma and both diagnoses. Further PTSD and depression each showed strong dose-response relationships with measures of trauma exposure.

A meta-analysis [98] was recently made in order to map the extent of mental health problems among refugees, using a world-wide study sample. Studies were selected if they included one or more control groups and if at least one quantitative group comparison on measures of psychopathology was made. The analysis showed that refugees as a group had moderately poorer mental health outcomes than non-refugees. It showed worse outcomes for refugees living in institutional accommodation and refugees experiencing restricted economic opportunities. Also, refugees that were female, older, more educated, those with losses of pre-displacement psychosocial status, and those with rural residence, were shown to have worse outcomes. Finally, the analysis showed that also those who were internally displaced in their own country and refugees that were repatriated to a country they had previously fled, had poorer mental health outcomes. Apparently, trauma as well as individual and contextual factors are of importance for the mental health of refugees, both in a short and the long term perspective. It can be assumed that in earlier studies, of refugee populations arriving in western countries, describing long-term improvements of psychiatric distress [99, 100] the resettlement conditions, including residency, educational opportunities, access to work and access to medical care, were more favourable than for recent and other refugee groups such as internally displaced, asylum-seekers and so called uncontrolled migrants/refugees. Among asylum-seekers, for instance, a marked decline in psychosocial status has been found, together with an ongoing severe stress due to fears of being repatriated, separation from family, and barriers to work and social services [96]. Although systematic research among these groups is limited by sampling difficulties, there is growing evidence that post-migration stress, together with the effect of previous trauma creates a risk of ongoing PTSD and other psychiatric symptoms [101].

The pervasiveness of trauma-related mental health problems among refugees, especially in vulnerable sub-groups is of a great importance. It raises questions of, the lack of, or the adequacy of, existing mental health resources for these groups. It also raises questions about health promoting contextual factors. Finally, it raises questions on an ethical as well as political level, about governmental policies regarding refugee resettlement.
AIMS OF THE STUDY

The overall aim of the thesis was to study trauma and mental health outcomes in a refugee population from Kosovo, that was temporarily mass-evacuated to Sweden, using a prospective design, and with an additional follow-up in both Sweden and Kosovo. Experiences from an earlier out-patient clinic study in a multicultural refugee population were used.

The specific aims of each paper were as follows:

- Paper I: To test a targeted approach, with validated psychometric tools, in assessing traumatic experiences, PTSD and associated symptoms in a multicultural immigrant refugee population attending a psychiatric out-patient clinic in a southern suburb of Stockholm.

- Paper II: To investigate trauma levels and the development of PTSD, using questionnaires, clinical diagnosing and cortisol testing, in a sample of mass-evacuated adults from Kosovo.

- Paper III: To investigate, using questionnaires and clinical diagnosing, the development of depressive symptoms and how they correlated to Sense of Coherence (SOC), in a sample of mass-evacuated adults from Kosovo.

- Paper IV: To investigate, using questionnaires and clinical diagnosing, the development of different aspects of aggression and how they correlated with trauma, PTSD and depression.
METHOD

Setting

Paper I
The psychiatric out-patient clinic, where the study was conducted during July 1993 – June 1995, is situated in an area of a southern suburb of Stockholm, which is heavily populated by immigrants and refugees. The clinical staff including psychiatrists, psychologists, social workers, psychiatric nurses and therapists had a long experience of working with immigrants from different parts of the world.

Paper II-IV
At the time of the study presented in Paper II-IV, the refugee group most in focus in Europe were the Kosovo Albanians who had been violently forced to leave their homes by ethnic cleansing; more than 780,000 were displaced during the spring of 1999 [26]. The Swedish government decided to take in 5,000 refugees in the Humanitarian Evacuation Program between April and June, 1999 and they were given temporary residence permits valid for 11 months. By the end of June 1999 about 3,700 had arrived. Research data pertaining to this period were not available, but the Kosovo Albanians were supposed to have suffered from severe trauma. In this context the Swedish Immigration Board, at the end of May 1999, approved a project with EU-funding concerning current medical, psychological and social needs among newly-arrived adults from the Kosovo province in Sweden of which the study (Paper II-IV) is a part.

Design, subjects and procedure

Paper I
The study was planned and implemented as a prospective study with baseline assessment and follow-up assessments after one year. New, adult, immigrant patients to the clinic (self-referred or referred from hospital and/or clinics) were randomly assigned to an intervention group and a referent group. They were informed about the study and the voluntary nature of participation. Immigrants were included in the study independent of their age on arrival in Sweden, and independent of whether or not they had refugee status.

In both the intervention group and the referent group psychosocial background data, such as age, gender, length of stay in Sweden, ethnicity, marital status, religion,
education, Swedish language acquisition, occupational status, health care consumption and life-style habits were collected.

In the intervention group SCID Axis I and II interviews were conducted by a psychiatrist (in the majority of cases by the author) at baseline. Axis IV and V of the SCID instrument were evaluated by two social workers at baseline and at the 1 year follow-up in the intervention group. When needed the interviews were carried out together with interpreters trained in the methods and the purpose of the study. The Harvard Trauma Questionnaires (HTQ) and Hopkins Symptom Checklist-25 (HSCL-25) were also used in the intervention group at baseline and the follow-up. The questionnaires were in Swedish but translated orally by an interpreter when needed. The back-translation method, as per Brislin et al. [102] could not be used to check the accuracy of the questionnaires as we did not know beforehand which language groups would be participating. However, the method was used when the questionnaires were translated into Swedish.

**Paper II-IV**

Designed and conducted as a prospective and longitudinal study. In the original design we intended to make baseline assessments and follow-up assessments after 3 and 6 months with questionnaires. Later due to new Swedish political decisions, the participants’ stay in Sweden was prolonged. A new opportunity then arose to carry out an additional, long-term follow-up after 1.5 years, which was not included in the original design. However after 1.5 years, many in the original study population had voluntarily repatriated to Kosovo and this follow-up was therefore conducted both in Sweden and Kosovo on the sample having participated throughout the study (i.e. at baseline, and at follow-up at 3 and 6 months). We also decided to include clinical diagnostics and measurement of saliva cortisol in this follow-up. This means that at baseline and at the 3 and 6 month follow-ups self-reporting questionnaires were used. At the 1.5 year follow-up questionnaires were used together with clinical interviews and cortisol was sampled.

A sample of 402 (one in five) of the Kosovars that in June had participated in the mass-evacuation to Sweden and were between 18 and 65 years old was randomly selected from airline passengers lists. This was deemed reasonable considering the time and resources at our disposal. However, the total number that would actually come to Sweden was uncertain and the situation was chaotic. This is also the reason why it was not possible to make power calculations.

Participation in the study was voluntary and informed consent was obtained before participation. The baseline study began in August 1999, with an inclusion period until September. The participants were supposed to stay at four centres of the Swedish Migration Board, in the north, west, central and south parts of Sweden.

The questionnaires were administered by Migration Board assistants after they had undergone a one-day training programme conducted by the research group. In their training they were also instructed to give advice about and assistance in obtaining psychiatric health care for participants scoring above a cut-off point on a screening instrument regarding trauma and trauma-related symptoms, i.e. the Health leaflet, which has been found to be suitable for use by lay persons [103]. Communication
Method

between the research group and the field was maintained by a contact person, from each of the four centres, who was responsible for contacting the assistants.

The questionnaires translated and back-translated into Albanian according to the standards of cross-cultural research [102] were designed as self-report instruments. However, in those few cases when the participants were more or less illiterate, the questions were read aloud by the assistants (in Swedish) and an authorised interpreter (in Albanian).

At the 1.5 year follow-up the author travelled to the four centres in Sweden to conduct the clinical SCID-interviews and to administer the saliva cortisol sampling among the participants remaining in Sweden. Thereafter the author travelled to Kosovo in order to do the same among the participants who had repatriated. A week earlier a Migration Board assistant and an interpreter had travelled to Kosovo in order to locate and make appointments with the participants. The author’s supervisor planned the follow-up study journey and supported the author in Kosovo. Together with the assistant she also administered the questionnaires.

Before the 1.5 year follow-up new informed consents were obtained prior to participation.

In Sweden the interviews were carried out either at the Migration Board centres or in the privacy of the participants’ homes. In Kosovo they were conducted in either a quiet place in the participants’ home or in a special interview room set up in a hotel in Pristina.

Instruments and measures

For all the questionnaires used in the papers permission was sought and granted. The Harvard Trauma Questionnaire (HTQ), the Hopkins Symptom Checklist-25 (HSCL-25) and the SCID-instrument were used in both Paper I and in some of the subsequent Papers II-IV. In Paper II-IV The General Health Questionnaire-28 (GHQ-28), The Sense of Coherence-12 Questionnaire (SOC-12) and Aggression Questionnaire, Revised Swedish Version (AQ-RSV) were also used. In Paper II cortisol sampling was used. Together with the questionnaire procedure in the Paper II-IV study the participants were asked whether or not the questionnaires were difficult to answer, if the questions were relevant for their situation or not and whether or not they found the questions intrusive and insulting.

Harvard Trauma Questionnaire

A structured self-rating instrument with four parts: Traumatic events (Part 1), personal description (Part two), injury to head (part 3), and trauma symptoms (part 4). Part 1, trauma events, contains questions about exposition to traumatic events usually connected with PTSD. Part 4, trauma symptoms, consists of 30 questions about trauma-related symptoms and 16 of these reflect DSM-IV criteria for PTSD. In Paper I the occurrence of PTSD measured with the HTQ was defined with an earlier proposed cut-off point >2.5. In Paper II and IV we instead defined occurrence of PTSD according to a scoring algorithm proposed by the Harvard Refugee Trauma Group [33]. The
instrument has been used in various populations and ethnic groups and the reliability and validity have been found to be high [33, 104].

**Hopkins Symptom Checklist-25 (HSCL-25)**

The instrument includes a 15-item depression sub-scale and a 10-item sub-scale of anxiety symptoms. The instrument has been widely translated and used in a number of studies among diverse cultural groups. It has proved to be internally consistent with a high test-retest reliability and valid for measuring anxiety and depression, both symptoms and the diagnoses [33, 105]. In Paper I the cut-off >1.75 for depression, usually adopted in earlier studies, was used. In Paper III and IV the cut-off >3.3 was used instead, as in our study we found the best sensitivity and specificity for having a clinically diagnosed depression with this cut-off.

**General Health Questionnaire-28 (GHO-28)**

The instrument, used in Paper III, was designed to screen for minor psychiatric morbidity in community settings or non-psychiatric clinical settings. GHQ and its different versions (60-item, 30-item, 28-item, 12-item), of which we used the 28-item version, have been used in many cross-cultural studies and it has been translated into about 40 languages [106]. There are four sub-scales: somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. The usual way of scoring the GHQ for case identification was adopted in our study.

**Sense of Coherence-12 (SOC-12)**

The instrument, used in Paper III, measures the three dimensions in the Sense of Coherence concept assumed to be of importance for coping and prevention of ill health: comprehensibility, manageability and meaningfulness. It has been found to be both valid and reliable in many studies in different populations and countries. There are different versions of SOC questionnaires, varying in the number of items. The short version SOC-12, used in this study, has been validated in various languages [107].

**Aggression Questionnaire, Revised Swedish Version (AQ-RSV)**

This instrument, used in Paper IV, was developed in the United States and has been standardised on a normal Swedish population [108]. The 29-item questionnaire has four sub-scales measuring hostility (eight items), anger (seven items), verbal aggression (five items) and physical aggression (nine items). In the Swedish version these items are arranged in a randomised order and the original 5 point Likert scale is reduced to four scale steps (from 1 = “least characteristic” to 4 = “most characteristic”). This adaptation showed no evident effect on correlation analyses between Swedish and American data. An advantage of this adjustment is avoidance of neutral answers.
Method

**SCID-instrument**
The instrument is designed for structural clinical interviews. In Paper I the version based on DSM-III-R was used. Axis I (psychiatric diagnoses), Axis II (personality disorders), Axis IV (psychosocial stress) and Axis V (functional level) were evaluated. In Paper II-IV the version based on DSM-IV was used and only Axis I, IV and V were evaluated. To evaluate Axis II in the Paper II-IV study was regarded as too exhausting for the participants given the time available for the measurement procedure. Several studies have demonstrated the superior validity of the SCID over standard clinical interviews [109]. The reliability of the SCID in diagnosing PTSD has been assessed as at 0.8 – 1.0 in earlier studies [110].

**Cortisol sampling**
Saliva samples were used. Cortisol levels measured in saliva have been judged as useful in the field of stress research because of the simple sampling procedure, compared with urine or blood sampling, and the stability of the samples [111]. This non-invasive procedure also avoids possible stress reactions connected with invasive methods. Samples were collected from each participant on one day at 8.00 am, 12.00 noon and 4.00 pm. The samples were kept cool for at most 2 weeks until they were spun in a centrifuge and then stored at −70 degrees C until analysed. Saliva cortisol concentrations were determined using the ‘Spectria’ cortisol 125I-coated tube radioimmunoassay. Intra-assay and inter-assay coefficient of variation in the laboratory never exceeded 10%. The sensitivity, or the lowest detectable concentration, of the analyte was 0.8 nmol/l. The specificity was high with cross reactivity at or below 1.6% (Orion Diagnostica, Espoo, Finland).

**Statistical methods**

**Paper I**
The Statistical Package for the Social Science (SPSS) for windows was used. Quantitative items are described by means, standard deviations and frequencies. Chi-square tests were used concerning observed differences of proportions. T-tests were used to describe differences in means. Correlations were evaluated with the non-parametric Spearman’s correlation coefficient. A probability level of 0.05 was adopted a priori as the minimum level for statistically significant differences. Internal consistency was estimated with Cronbach’s alpha.

**Paper II-IV**
The Statistical Package for the Social Sciences (SPSS) for windows was used. Quantitative items are described by means, standard deviations and frequencies. Chi-square tests were used concerning observed differences of proportions. Differences between means were tested with the non-parametric Mann-Whitney test with regard to measures from the questionnaires and with t-tests with regard to the cortisol measures
(geometrical means were used). Correlations between variables were tested with the non-parametric Spearman correlation coefficient. The changes of mean scores over time were measured with the non-parametric Friedman test. A probability level of 0.05 was adopted a priori as the minimum level for statistically significant differences. Discriminant analyses and ROC-curve coordinates were used to evaluate validity of questionnaires. Internal consistency was estimated with Cronbach’s alpha.
ETHICAL CONSIDERATIONS

The obvious ethical consideration when making studies and assessments in traumatised populations is what will happen to these persons when they are asked about powerful, experienced trauma events? Among traumatised refugees this consideration is even more important as these persons are usually in a marginalised and vulnerable situation, lacking psychosocial and health support. Is asking about experienced trauma and symptoms related with trauma an intrusion on personal integrity? Is there a risk for re-actualisation of traumatic experiences with negative health effects? Even if these risks should not be neglected, the author’s experience both from the SCID-interviews and earlier clinical work, is that traumatised persons mainly demonstrate a feeling of relief and confidence when someone cares to ask them about trauma experiences. Support for this was also demonstrated among the Kosovo Albanian participants in the study, who with very few exceptions reported that they found the questionnaires “relevant for my situation”. None answered that they found the questionnaires “intrusive and insulting”. Further, in the study among the Kosovo Albanians, Paper II-IV, the interviewers were trained to use a screening instrument to identify participants at risk and to support them in obtaining health care, in order to reduce this risk. Contrary to this, however, we found that due to structural barriers outside our control, the participants at risk did not receive specific treatment. In the other study, Paper I, all participants were already under treatment. The study was approved by the Ethics Committee at the Huddinge Hospital (reference number 79/93) and the regional research ethics committee of Karolinska Institutet (reference numbers: 99-245 and 00-444).
RESULTS

Participants, dropout analysis and background variables

Paper I
Of the total of 63 patients (57% women and 43% men) who consented to participate at base-line, 42 (67%) patients also attended the 1 year follow-up. The response rate was 73% for women and 70% for men. There were no significant differences between the drop-outs and the follow-up group concerning background variables and results.

Among the 15 different nationalities besides the Swedes, the Turkish (25%), Yugoslavian (17%), and Finnish (14%) were the largest citizenship groups. The three main religious affiliations were Protestantism (25%), Islam (24%), and Greek Orthodox (21%). Median age was 39 years in the intervention group and 46 years in the referent group. None of these variables differed significantly between the intervention and referent group.

Paper II-IV
Prior to the baseline study, 59 of the 402 possible participants had left Sweden. Of the remaining 343 persons, 218 participated at baseline (64% response rate). Women numbered 122 (56%) and men 96 (44%). No background data were available via the passenger lists due to logistic limitations and a chaotic situation at the time of arrival. For this reason it was impossible to make a drop-out analysis at baseline.

Between baseline and the 3 month follow-up, 38 participants (17%) had repatriated out of the 218 participating at baseline. Of the remaining 180 persons, 131 (70 women and 61 men) participated in the first follow-up, three months after the baseline, giving a response rate of 73% (i.e. percentage of participants out of available subjects at the follow-up).

At the 6 month follow-up, 91 participated (44 women and 47 men), that is 65% of those who participated at the 3 month follow-up. At that point we were unable to estimate how many had repatriated between the 3 and the 6 month follow-ups.

At the additional follow-up, after 1.5 years, of those who had remained in Sweden and applied for asylum and those having repatriated to Kosovo, after the 6 month follow-up, a total of 56 participated, that is 62% of those who had participated at the 6 month follow-up. Thirty-five of these (18 women and 17 men) were applying for asylum in Sweden and 21 (11 women and 10 men) had voluntarily returned to Kosovo.

This means that the drop-out rates were 87/218 between baseline and the 3 month follow-up, 40/131 between the 3 month and the 6 month follow-up, and 35/91 between the 6 month follow-up and the additional 1.5 year follow-up.
Results

In the analysis of the drop-outs between the four investigations (baseline, 3 month, 6 month and 1.5 year follow-ups), there were no significant differences between participants and drop-outs regarding gender, age and educational level. The only socio-demographic difference was that participants at the 3 month follow-up were significantly more often married or cohabiting compared to the dropouts. The assumption is that single women and men may have returned to their social network in Kosovo. The dropouts did not differ significantly from the participants at any of the follow-ups regarding HSCL-25, GHQ-28, SOC-12 or AQ-RSV scores. Regarding the HTQ: no significant differences were found between dropouts and participants at any of the follow-ups regarding experience of torture. The dropouts at the 3 month follow-up had significantly more PTSD-related symptoms scored with the HTQ than participants. At the other follow-ups, the dropouts did not differ from the participants with regard to HTQ scores.

At baseline: the average age was 40 years and there were no significant differences between the sexes. Three-quarters (76%), more men (81%) than women (72%), of the participants were married. Male participants reported to a significantly higher extent, compared with female participants, that their partner and parents were here in Sweden. The average number of years at school was 9.7; significantly (p<0.001) higher among the male participants than the female participants. Six per cent had no schooling.

Main results Paper I

Of those in the intervention group clinically diagnosed with the SCID instrument and evaluated with the HTQ and HSCL-25, 40% were judged to have PTSD. Further, in this group the median number of exposed traumatic events was 13. In the referent group with which standard diagnostic procedures were used no PTSD diagnoses were found. At the same time no significant differences were seen between the intervention group and the referent group regarding citizenship, religion, or socio-demographic characteristics such as age, marital status, years of education, refugee status, language learning and years spent in Sweden. No significant difference was found between the groups as to whether they were referred to the clinic due to somatic or psychiatric symptoms. Further, no significant differences were observed between the groups regarding the use of prescribed medicine.

A significant positive correlation was seen between PTSD diagnosed with SCID and number of experienced trauma events (p<0.01). A significant negative correlation was found between social functioning and the number of experienced trauma events (p<0.05). A significant negative correlation was also found between social functioning and HTQ scores (p<0.05). No significant improvement in the intervention group regarding PTSD symptoms or social functioning was seen at the 1 year follow-up.
Mains results Paper II

The mean number of experienced trauma was 9.65 (SD 3.55). Torture had been experienced by 53%. Women showed a significantly higher frequency of having experienced 2 (“Combat situation” and “Ill health without access to medical care”) out of 16 types of trauma.

Mean scores of PTSD related symptoms in the HTQ increased significantly (p<0.0001) over time, especially between the 6 month and 1.5 year follow-ups. The percentage of those diagnosed as having PTSD according to the HTQ also increased over time from about 37% at baseline to 80% at the 1.5 year follow-up. Those defined as having PTSD according to the HTQ report traumatic experiences commonly connected with PTSD. After a discriminant analysis it was found that 85% of those clinically diagnosed as having PTSD could be identified with the HTQ at the 1.5 year follow-up.

The percentage of those clinically diagnosed with SCID as having PTSD at the 1.5 year follow-up was 73% (women 83%, men 62%). The percentage of clinically diagnosed PTSD among those remaining in Sweden as asylum-seekers at the 1.5 year follow-up was 85% (women 94%, men 75%). The percentage of clinically diagnosed PTSD among those repatriated was 52% (women 64%, men 52%). Among those clinically diagnosed as having PTSD significantly (p<0.017) lower levels of cortisol were found compared to those who did not have PTSD.

Main results Paper III

At the 1.5 year follow-up 36% (women 45%, men 27%) were clinically diagnosed with depression. Of those remaining in Sweden as asylum seekers 56% were clinically diagnosed as having depression. Among those repatriated to Kosovo 5% were clinically diagnosed as having depression. All participants clinically diagnosed with depression at the 1.5 year follow-up also had PTSD. The co-morbidity between the diagnoses was 50% (women 54%, men 44%).

Mean scores of depression measured with both HSCL-25 (p<0.0001) and GHQ-28 (p<0.0001) increased significantly over time. Social dysfunction scores increased significantly (p<0.0001) over time. A significant correlation was seen between depression scores and social dysfunction scores (r<0.0001). Thoughts about suicide increased significantly (p<0.0001) over time and were significantly more frequent among those clinically diagnosed with depression (p<0.0001).

SOC scores decreased significantly over time (p<0.0001). SOC-scores were to a significant degree negatively correlated with depression scores on all occasions. No significant correlation was seen between SOC-scores at base line and depression scores measured at the 1.5 year follow-up. No significant difference in SOC-scores at baseline was found between those diagnosed with or without depression at the 1.5 year follow-up.
Main results Paper IV

Aggression scores were significantly higher among participants clinically diagnosed as having PTSD (p<0.0001). The same was found among those clinically diagnosed as having depression (p<0.0001). Those clinically diagnosed with both PTSD and depression had significantly (p<0.031) higher aggression scores than those diagnosed with only PTSD.

A significant positive correlation was found between mean scores of the HTQ and aggression scores. A significant correlation was also found between depression symptom scores and aggression scores (p<0.0001).

At the 3 month follow-up, but not at the later follow-ups, those having experienced five different trauma, among them torture, had significantly higher aggression scores compared with those not having experienced the trauma.

Those remaining in Sweden as asylum seekers at the 1.5 year follow-up had significantly higher (p<0.017) aggression scores than those having repatriated to Kosovo. No gender differences regarding aggression scores were found. A significant positive correlation was found between age and verbal aggression (p<0.016). Educational level was also to a significant degree (p<0.014) positively correlated with verbal aggression.

Main results common to Papers II-IV

SCID-diagnoses at 1.5 year follow-up

The distribution of clinical diagnoses found in the SCID-interviews at the 1.5 year follow-up are described in Table 1.

<table>
<thead>
<tr>
<th>Diagnoses (%)</th>
<th>PTSD total</th>
<th>PTSD with co-morbid depression</th>
<th>Anxiety disorder, other than PTSD (single diagnose)</th>
<th>Schizofreniform psychosis (single diagnose)</th>
<th>No diagnose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>73</td>
<td>36</td>
<td>4</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Women/Men</td>
<td>83/62</td>
<td>45/27</td>
<td>0/8</td>
<td>0/4</td>
<td>17/27</td>
</tr>
<tr>
<td>Sweden/Kosovo</td>
<td>85/52</td>
<td>56/5</td>
<td>0/10</td>
<td>3/0</td>
<td>12/38</td>
</tr>
</tbody>
</table>

Table 1

Distribution of clinical, SCID-diagnoses among participants (n=56) at the 1.5 year follow-up expressed in percentage (%).
Main differences between the participants remaining in Sweden as asylum seekers and participants who repatriated

We investigated whether the differences in health outcome measures at the 1.5 year follow-up between those who had remained in Sweden and those who had repatriated could be explained by the fact that those who were healthier returned to their home more readily. However, we could not see any significant differences in any of the measures at baseline or earlier follow-ups between those who later decided to repatriate or not.

The percentage of those clinically diagnosed with PTSD was higher among those remaining in Sweden (85%) than among those who had repatriated (52%) (p<0.012). The percentage of those clinically diagnosed with depression was also higher among those remaining (56%) than those who had repatriated (5%) (p<0.0001).

At the same time, both those who remained and those who repatriated scored the highest mean on both HTQ-scores and depression-scores at the final follow-up. Further, mean scores of HTQ and depression increased significantly between the 6 month follow-up and the 1.5 follow-up both for those remaining in Sweden (p<0.0001; p<0.0001, respectively) and for those who repatriated (p<0.05; p<0.001, respectively). Aggression scores, however, increased significantly (p<0.001) between the 6 month and 1.5 year follow-up only among those remaining in Sweden. Among those repatriating neither a significant decrease nor increase of aggression scores were seen during the same period.

Main gender differences in Papers II-IV

Women had significantly more often than men experienced combat situations (p<0.013) and ill health without access to medical care (p<0.002). At baseline women scored significantly higher than men on HTQ scores (p<0.001) but at later follow-ups no significant gender differences were seen regarding HTQ-mean scores. However, both women (p<0.001) and men (p<0.0001) had significantly increasing mean scores of HTQ throughout the study.

Regarding measures of depression women scored significantly higher than men at baseline (p<0.0001), at the 3 month follow-up (p<0.008), at the 6 month follow-up (p<0.05) and at the 1.5 year follow-up (p<0.011).
DISCUSSION

Problems in diagnosing PTSD (Paper I)

Before discussing the problems concerning diagnosing PTSD it is relevant to raise the question of the necessity of doing so, especially in multi-ethnic migrant/refugee populations. However, there are several factors underlining the importance of diagnosing PTSD in general and among multi-ethnic populations in particular. Firstly, there is growing evidence of the importance of regarding PTSD as a separate diagnosis requiring specific treatments and support [112]. Evidence-based treatment strategies, specific for PTSD, both regarding pharmacological and psychotherapeutic treatment, have been suggested after meta-analyses and consensus meetings [113]. Secondly, the prognosis, both regarding symptom level and social functioning is supposed to be influenced by early diagnosis and subsequent interventions. Support for this was demonstrated in a Swedish study [114] where probable PTSD patients not diagnosed as having PTSD had less favourable long-term outcomes regarding both symptom levels and participation in working life, compared with other psychiatric patients. Further, the consequences of PTSD can be extremely long-lasting. It was shown in a population survey [115] of Dutch citizens who lived through war trauma and persecution that specific symptoms related with PTSD, i.e. intrusive memories of trauma, constituted the strongest predictor of health service utilisation over a period of nearly 50 years. Thirdly, in traumatised refugee populations PTSD is the most common diagnosis [14], probably independent of ethnic background. Support for the latter was found in a study [116] among four ethnic groups (Arab from the Middle East, Iranians, Turks and Swedes) where PTSD, contrary to most other diagnoses, did not relate to ethnic group but instead to the prevalence of reported trauma. Finally, refugee populations have a specific vulnerability, due to problems related with migration and acculturation. Therefore, addressing trauma and adequate diagnosing are probably even more important in these populations.

The most important finding in Paper I is that with a targeted approach using validated diagnostic (SCID) and self-rating instruments (HTQ and HSCL-25) in the intervention group, 40% were diagnosed as having PTSD while in the referent group with standard diagnostics, no PTSD patients were found. At the same time the two groups did not differ in any aspect regarding socio-demographics or other characteristics. It is therefore reasonable to draw the conclusion that this finding reflects the advantage of using a targeted approach in diagnosing PTSD. Support for this conclusion was found in another study [116] carried out more recently on a similar population. In a one-year cohort of psychiatric outpatients, no patients received the diagnosis PTSD while in the same population a high proportion of patients met the criteria for PTSD at a follow-up where the “Self-rating Inventory for PTSD (SIP) instrument” was used. Possible explanations as to why PTSD patients are not diagnosed
in clinical populations are a lack of knowledge about PTSD and attitudes towards or difficulties in diagnosing.

Even if PTSD is a relatively new diagnosis at the time of the study described in Paper I (1993 - 1995), knowledge about PTSD was wide-spread in Sweden and in particular among the staff members at the out-patient clinic where the study was conducted. Most of the staff had long experience of multi-cultural patients.

Attitudes towards diagnosing, such as fear of stigmatisation, can hardly explain why PTSD is not diagnosed. In both the referent group described in Paper I, and among patients in the study referred to above [116] several other psychiatric syndromes such as depression and psychoses were frequently diagnosed.

A more plausible explanation as to why PTSD is not diagnosed is difficulty in asking about severe trauma experiences. Counter-transference reactions can make caregivers avoid traumas that through their severity or multiplicity seem overwhelming [117]. It has also been suggested that such counter-transference reactions more easily emerge when, due to cultural barriers, it is more difficult to identify with patients. A way to overcome this obstacle is the complementary use of structured culturally-validated instruments in assessing trauma-related health problems among refugees, even though “instruments” can never be a substitute for empathy and self-reflection.

**Trauma, PTSD, depression and Sense of Coherence (Paper II-IV)**

For a better understanding of the mental health outcomes among the Kosovars described in this study it is necessary to start with their history of experiencing both severe war traumas and more long-lasting, structural traumas. The Kosovo Albanians structural trauma started already in 1989 when their autonomy was strongly reduced, their media shut down, their language suppressed and they were forced from jobs. Thus, during a period of about ten years before the ethnic cleansing of the Kosovars described as of “genocide” nature, they were living as marginalized and suppressed foreigners in their own country.

This long-lasting structural trauma was not measured with the trauma questions in the HTQ but is seen as a factor that made the Kosovars more vulnerable for the subsequent trauma they experienced during the ethnic cleansing.

The mean number of trauma in the population measured with the HTQ was high (9.65). More than 90% had experienced combat situations and as many as 53% had experiences of torture. Approximately the same figures were found in another study conducted by Cardozo et al. of Kosovo Albanians in Kosovo [36] where 49% had been exposed to torture.

Both in the study described in Paper I and in other studies [72] a correlation has been found between the number of experienced trauma and PTSD. Torture has also been found to be a main predictor of PTSD [70]. The prevalence of PTSD-related symptoms at baseline (37%) was high compared with earlier epidemiological studies, where the prevalence of PTSD in populations exposed to violence usually varies between 4 and 20% [14]. However, in two studies [36, 37] carried out immediately after and a year after the war in Kosovo the prevalence of PTSD was 17% and 25%
Discussion

respectively. Prevalences for PTSD of about 50% and even 60% [34, 35] have also been found among Kosovo Albanians. The high prevalence of PTSD, and the high levels of PTSD-related symptoms measured with HTQ, at baseline were therefore expected.

Women had experienced significantly more of two out of 16 types of trauma (Combat situations and Ill health without access to medical care) than men. This might explain why female participants in our study demonstrated higher symptom levels than men regarding PTSD symptom scores at baseline and regarding depression scores throughout the study. It has previously been shown that women in mass conflict populations are especially vulnerable. In a review of epidemiological surveys, women were regularly found to score higher on measures of psychological stress [122]. The gender differences regarding psychiatric vulnerability in traumatized populations and their relations to both trauma and psychosocial aspects require further investigation and should be evaluated in the context of trauma exposure.

We did not expect the increasing symptoms levels among the Kosovars throughout the study. This increase was observed on all measures regarding self-rating symptoms of PTSD, depression, and aggression, especially between the 6 month and 1.5 year follow-ups.

The high and increasing levels of self-rated PTSD and depression, both regarding symptoms and diagnoses, could have been doubted as they were based on self-rating instruments. Further, the scoring algorithm for PTSD caseness, recommended and used in the study, does not include questions about experienced trauma. We therefore evaluated if those who had been diagnosed with the HTQ as having PTSD also had experienced traumas usually connected with PTSD. We found that they had experienced such traumas. Further, at the final follow-up the self-rating measures of depression and PTSD could be validated with the SCID clinical diagnostic instrument.

At the 1.5 year follow-up we also found that participants diagnosed, both with the HTQ and clinically with SCID, as having PTSD, even had significantly lower levels of cortisol compared to the participants without PTSD. Earlier studies have shown conflicting results regarding the association between low cortisol levels and PTSD. However, factors that are suggested to contribute to a low level of cortisol are experiences of intensive, repeated stress exposure and severe symptoms of PTSD. These factors were present among the Kosovars. Further, it has been shown in an earlier study that co-morbidity of PTSD and depression is associated with a lower cortisol level. In our study all patients with depression had also PTSD and the co-morbidity was 50%. This talks in favour of regarding the lower cortisol levels associated with PTSD in this population as biological evidence for the diagnosis.

Further, as the questionnaires were validated both by clinical interviews and biological measures the finding that participants remaining in Sweden had poorer outcomes than those who had repatriated after the 6 month follow-up, can hardly be explained by the fact that those remaining in Sweden as asylum seekers had an interest in demonstrating high symptom levels in order to improve their chances to obtain permanent permission to stay in Sweden. The fact that those remaining in Sweden at the final follow-up had the worst health outcomes might be misunderstood and used as an argument for the repatriation of refugees. The result can not be explained by the fact that the healthier preferred to repatriate, because no differences were seen in symptom
levels at baseline or at 3 and 6 month follow-ups between those who decided to either repatriate or remain after the 6-month follow-up. However, even those who decided to repatriate demonstrated the highest symptom levels both regarding depression and PTSD, after they had returned to Kosovo at the final follow-up. Further, HTQ-scores and depression scores increased significantly between the 6 month and 1.5 year follow-ups both for those remaining in Sweden and those who repatriated to Kosovo. Thus, this finding in our study should not be used as an argument for repatriation. It rather raises serious questions about severe post-migration stress factors during the participants’ stay in Sweden. This is also in line with a meta-analysis [98] of the extent of mental health outcomes among refugees, world-wide, which showed that refugees repatriated to a country they had previously left had poorer mental health outcomes.

Together with increasing scores of depression and PTSD there was even an increase in social dysfunction scores measured with the GHQ-28. This result is in line with findings from an earlier study where co-morbidity of PTSD and depression was associated with long-term psychosocial dysfunction [33]. It might be argued that the GHQ-28 sub-scale of social dysfunction is not a robust measure of social dysfunction. In this population, however, it was difficult to measure social dysfunction in other ways such as rates of sick-leave or impaired language learning. Due to the circumstances in which the participants were living as temporarily displaced persons or asylum seekers they were not supposed to go to school or work or to learn the Swedish language. Further, those who had repatriated were with very few exceptions unemployed.

Thoughts about suicide measured with the GHQ-28 were associated both with clinically diagnosed depression and depression measured with HSCL-25. Suicidal thoughts also increased significantly over time. A high suicide risk among traumatised populations was demonstrated in an earlier study [77] where the combination of depression and PTSD was found to be associated with an increased risk for suicidal behaviour. It has been argued that suicidal thoughts among asylum seekers should not always be taken seriously as presenting suicidal thoughts is crucial to improving the chances for permission to stay. However, a more serious way to look at this phenomenon is to realise that asylum seekers usually have most of the well-known risk-factors connected with suicide. Further, the highest risks for suicide have been found among migrant groups in Europe [4], and refugees are an especially vulnerable migrant group as they usually fall outside existing health and social services.

In the present study SOC scores were always negatively correlated with depression scores. SOC scores decreased when depression scores increased. At the same time SOC scores at baseline could not predict depression at later follow-ups. These results cast doubt on regarding SOC as an independent measure. It should perhaps be regarded merely as a general measure of psychopathology. The results are also arguments for seeing SOC as a state that is not stable over time and not a trait. On the other hand, contradictory results have been found in earlier studies [90, 91]. This together with the fact that the sample size in our study was relatively small makes it difficult to draw conclusions from our results about the applicability of SOC in studying refugee populations. Further, the decrease in SOC scores in our population could be explained by a change in the participants’ world view due to post-migration stress and thus their Sense of Coherence, a phenomenon that has been observed in an earlier study [92]. We should also bear in mind that the concept of SOC is difficult to translate into new cultural
settings. This was reflected in our study where the reliability measured with Cronbach’s alpha was relatively low. Nevertheless even if SOC-scores are significantly negatively correlated with measures of depression, the concept of SOC elucidates dimensions of the refugees’ life situations that are not captured by other measures, such as HSCL or GHQ.

**Aggression in a vulnerable population (Paper IV)**

Even though aggression is expected to be present among traumatised refugee populations, very few studies concerning aggression have so far focused on refugees. The results from our study might therefore be of importance. The correlation between PTSD and aggression was expected as irritability and outburst of anger are among the symptom criteria for PTSD. This correlation has also been found in earlier studies [81]. We also found that those with both PTSD and depression had significantly higher aggression scores compared with those having only PTSD. Thus, this co-morbidity, earlier shown to be associated with both social dysfunction and suicide attempts obviously appears to be of even greater importance. Further, we found that torture was associated with all kinds of aggression, including physical aggression at the first follow-up but not later. At the same time aggression scores increased significantly over time. An explanation for this might be that at later follow-ups, other factors, rather than pre-migration trauma, connected with post-migration stress were of greater importance as a cause for aggression. Further, aggression scores increased significantly between the 6 month follow-up and the 1.5 year follow-up only among those remaining in Sweden, while among those who repatriated neither a significant increase nor decrease in aggression scores were seen. This is a remarkable finding as it would have been more likely to find increasing aggression scores among those who had repatriated and come closer to their previous traumatic situations.

We were not able to study any eventual correlation between increased aggression and PTSD with co-morbid alcohol or drug abuse, a correlation that has been found in an earlier study [85], due to the fact that none of our population, after the SCID diagnosing, were found to have drug or alcohol abuse. In an earlier study [87] of a refugee population it was demonstrated that domestic violence could be described in the context of immigration, acculturation and changes in social structures. This, together with the findings in our study, illustrates the importance of elucidating both the presence of aggression, the consequences of aggression and supportive structural factors among refugees.

**The importance of post-migration factors**

Most of the results in our study seem to be connected with post-migration stress factors. Post-migration stress and its relation to health outcomes among refugees have been of interest in recent studies [70, 118]. Two factors have emerged from cumulative research regarding determinants of mental disorder in refugees, namely, past trauma and post-migration stress [119]. In our study we found a high pre-migration trauma level. We could not find evidence of exposure to post-migration violence. A high percentage of
the latter has been found, and associated with both PTSD and depression, in another refugee population [97]. A less probable explanation for the increasing symptom level, from baseline and onwards, i.e. after migration, is that PTSD and depression take time to develop. However, the most obvious interpretation of the results is to understand them as a consequence of structural post-migration stress. During their post-migration period the participants, initially temporarily mass-evacuated and then asylum-seekers, were living in circumstances they shared with other “uncontrolled migrants”, such as restrictions regarding access to work, education, housing, welfare and health services. In our study, the training of the staff to administer, under supervision, a screening instrument to help identifying participants at risk, and to support them in obtaining relevant mental health care, yielded little or no result. Such participants did not gain access to such health care, as far as we know today, due to a bureaucratic gap between the Migration Board System and the health care system. An underlying reason for this is probably the fact that adult asylum seekers in Sweden only have access to acute health care, or health care that can not be deferred. In addition to this the Swedish government gave contradictory messages to the Kosovars regarding the duration of their temporary stay in Sweden. Also, especially during the time after the 6 month follow-up most of those still living in Sweden wanted to stay permanently and became asylum seekers. However, they did not know what their chances were of obtaining such permission. In terms of structural stress factors, the situation for populations such as those participating in our study seems to be devastating. It was also shown in a study [120] of asylum seekers in the Netherlands that the duration of the asylum procedure is an important risk factor for psychiatric problems. Accordingly, structural health-promoting factors on all levels, including non-restricted access to health care, are of greatest importance for refugees and especially for the refugee sub-population of “uncontrolled migrants”.

Limitations of the thesis

A limitation regarding both studies in the thesis (Paper I and Paper II-IV) is the relatively small sample sizes making it difficult to generalize the results to a broader migrant/refugee population.

Another limitation common to both studies is that the validity of the questionnaires may be influenced by ethno-cultural differences. This is especially relevant for the first study (Paper I) where the instruments were not back-translated according to Brislin’s method, and several ethnic groups participated. According to Marsella [121], validity in cross-cultural assessment calls for equivalence or comparability with regard to the language, the conceptual meaning of terms, the scales, and the norms against which the results are examined. In the second study (Paper II-IV) a linguistic equivalence was attained by back-translation but otherwise the instruments were not validated for the ethnic group of Kosovo Albanians.

A further limitation regarding both studies is lack of data about the dropouts before the baselines.
Discussion

There are several other limitations regarding the second study (Paper II-IV), e.g., the dropout-rate at the follow-ups. However, no relevant, significant differences between dropouts and participants were found at any of the follow-ups. Clinical diagnoses and saliva cortisol levels were only registered at the final 1.5 year follow-up. However, the instruments were partly validated with the clinical diagnosing at the 1.5 year follow-up. Saliva cortisol sampling, due to difficulties in the sampling procedure and logistic limitations, started at 8 am and not immediately after awakening as recommended by expert opinion. A mean value of three samples in one day (8.00 a.m., 12.00 none, 4.00 p.m.) was measured.

Implications

Research and clinical implications
An implication regarding diagnosing PTSD and other trauma related syndromes both in research and clinical migrant populations is the importance of using cross-culturally validated diagnostic instruments; instruments that are also validated against DSM-IV, and that cover experienced trauma, symptoms and also social function.

Traumatised migrants with co-morbid PTSD and depression are at great risk regarding social function, aggression and suicide and should therefore be paid more attention both in clinical practise and further research.

It would be of great interest to further research aggression in traumatised migrant populations and its consequences on a close network level as well as a structural and political level. Qualitative methods such as deep interviews and focus group interviews and intervention studies are recommended as a complement to clinical and biological approaches.

Refugees such as asylum seekers that are so-called “uncontrolled migrants” are at great risk for poor mental health outcomes. So far, little research has been conducted among these extremely traumatised and vulnerable populations. Even if research in this field is complicated for many reasons, not least logistically, it is an area urgently requiring more attention. Clinical implications for these populations are the need of both valid diagnosing and individually tailored treatment strategies involving health-promoting social and structural support.

Training implications
Further training is needed regarding trauma-related mental health outcomes among refugees and asylum seekers for the staff working in both the health care system and in the Migration Board system. Such training should start as a compulsory subject at university level for all students who are to work with clients and patients.

Political and ethical implications
Existing laws and policies regarding both health service and migration/integration in connection with asylum seekers seem to be devastating. The most urgent need among
many others is to offer health care to all, including the most traumatised and vulnerable, according to their needs.

**Conclusions**

- Trauma-related syndromes in refugee populations, such as PTSD, are both important and difficult to diagnose and need targeted approaches.

- Vulnerable groups among migrants are refugees in general and in particular asylum seekers, temporary mass-evacuees, women and those with co-morbid PTSD and depression.

- Pre-migration trauma and post-migration stress are both of great importance regarding mental health outcomes in migrant populations.

- Aggression in traumatised refugee populations, especially its consequences, needs to be evaluated more fully.
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REFERENCES


References


References


References


References


References


