The Swedish Soldier and General Mental Health Following Service in Peacekeeping Operations

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Abstract

The Scandinavian countries have a long tradition of taking part in peacekeeping missions and also of research in this field. The aim of this thesis is to continue the tradition of research and try to shed some more light on the mental health aspects of peacekeeping operations. Two methods were used to accomplish this. One was to study a Swedish battalion serving for 6 months in NATO’s IFOR mission in Bosnia in 1996, using a longitudinal approach. Questionnaires covering predeployment factors, general mental health, traumatic experiences and effects of support were used. The other method was to perform a register study in which 39 768 individuals who had served in peacekeeping missions were compared to a matched group of the general population with regard to differences in suicide rates. The general level of mental health problems and post-traumatic reactions was low and did not change over time. Traumatic experiences during service only appeared to make a temporary difference in general mental health. There are indications that possible predictors for poor mental health in peacekeepers could be constituted by: lower mean scores on the SOC questionnaire and on the Emotional Stability scale of the FFPI; personality disorders in general; prior family problems or psychiatric problems expressed through suicidal thoughts before deployment and problems experienced post-deployment, such as "relationship problems", death of a close relative", or "financial problems". It was found that the combination of peer support and a defusing session led by platoon commanders had positive effects on the post deployment mental health. The rate of personality disorders appears to be at the same level as or at a slightly lower level than in the general population. Compared to the general population, the suicide rate was showed to be lower in the peacekeeper population.

Keywords: Mental health, military, peacekeeping, personality disorders, suicide.

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Abbreviations

BICEPS  Brevity, immediacy, centrality, expectancy, proximity and simplicity
CI       Confidence interval
CISD     Critical incident stress debriefing
DIP-Q    DSM-IV & ICD-10 Personality Questionnaire
FFPI     Five Factor Personality Inventory
GHQ-28   General Health Questionnaire (28 questions)
HGD      Historical group debriefing
ICD-7 (-8,-9-  WHO International Classification of Diseases
  10)      Revision 7 (revisions 8 through 10)
IFOR     Implementation Force (of the Dayton Agreement in the Balkans)
NATO     North Atlantic Treaty Organisation
NVVRS    National Vietnam Veterans Readjustment Study
PfP      Partnership for Peace (Non-member states attached to NATO in peacekeeping operations)
PfP      Proximity, immediacy and expectancy
PTSD     Posttraumatic stress disorder
SMR      Standard Mortality Ratio
SOC      Sense of coherence
SD       Standard deviation
UK       United Kingdom
UN       United Nations
UNIFIL   United Nations Interim Forces in Lebanon
US       United States
USA      United States of America
WHO      World Health Organisation
WW I     World War I
WW II    World War II
Introduction

Mental health among soldiers through history

Over millions of years, humans have evolved the ability, when threatened with danger, to respond with a stress reaction to prepare them to fight or to flee. Throughout history soldiers have been common victims of this experience, and the history of psychotraumatology primarily relates to the development of knowledge in the military field. Shepard (2000) and Weisaeth (2002) present an elegant description of this history. A short summary of their work is outlined below. For furthermore details, see these two authors.

Nightmares among soldiers were described already by Homer in the Iliad (Shay, 1994). Field Marshall von Goltz described reactions among Danish soldiers in the Battle of Lund in 1656 as “Terror Panicus”. In 17th Century Switzerland (Hofer, 1678) and during the American Civil War in the 19th Century, soldiers’ symptoms were referred to as “Nostalgia”. It can be easily seen that the descriptions of soldiers’ reactions to battle are a function of the views of contemporary society. In the latter part of 19th Century, soldiers’ reactions focused primarily on somatic experiences, and the diagnosis consequently changed to “irritable heart syndrome” or “soldier’s heart” (da Costa, 1871). Other civilian examples are the terms “railway spine” and “railway brain”, describing the injuries following accidents involving the recently introduced new mode of transport, the train (Erichsen, 1866, 1886). This focus on somatic origin would continue for a considerable period of time and can obviously be explained by a lack of knowledge concerning the relationship between mind and body at that time. There were just a handful of far-sighted doctors who pointed out that these reactions might have a psychological origin and perhaps be the result of pure fright (Page, 1883). Another important aspect is that knowledge concerning soldiers’ reactions to their experiences in the battlefield seems to have been lost between the wars (Ahrenfeldt, 1958). Psychiatrists found during the 1905 Russo-Japanese War, for example, that mental illness in soldiers worsened if they were evacuated from the field. They called this phenomenon “evacuation neurosis”. This lesson had to be learned repeatedly over the years that followed.
The unwillingness to accept soldiers’ reactions as psychosocial aspects continued and was evident in some cases as late as the Second World War (WW II). In the First World War (WW I), many soldiers with mental disorders were regarded as malingerers and deserters and dealt with accordingly. About three hundred British soldiers were executed for failure to function in battle. An important factor in these kinds of large-scale wars is the need to keep manpower levels up, and many of the measures taken were designed to meet this concern. Later in WW I the term “shell shock” was introduced (Myers, 1915). This state was thought to be the consequence of organic changes in the brain after shelling. Later on it helped many soldiers to obtain a diagnosis without being stigmatised as cowards. The works of Oppenheim (1889) introducing the term “traumatic neurosis”, Charcot (1887), Janet (1889, 1894) and later on Freud (1920/1964a) describe the psychological effects of trauma. However, introducing psychological aspects at that time represented another pitfall for military psychiatrists. The vulnerability within the individual soldier became the primary source of the problem, rather than his traumatic experiences (Bonhoeffer 1926). This view was exploited at an early stage in Germany (“Rentenneurose”) to avoid having to compensate soldiers financially after a war. It was not until the second half of WW II that views on soldiers’ reactions changed, although some still had problems with this. The term “psychoneurosis” was soon turned into “psycho” by soldiers and persisted for a long time. General Patton slapping a soldier in the face and calling him a coward because of an earlier breakdown was perhaps a key moment for the American forces. Later on, labelling reactions as “combat exhaustion” or “combat fatigue” probably helped to reduce the risk of further stigmatisation and instead to encourage acceptance.

Primary interventions – “Forward Psychiatry”

Thomas W. Salmon, an American psychiatrist, was sent to Europe before the United States joined WW I, to study the Allies’ practices in taking care of their soldiers. He found that there were problems in returning soldiers who had been evacuated after breaking down at the front. The primary gain for these soldiers was that their lives were saved. They also achieved a secondary gain in that they could declare themselves, and be described by at least some others, as suffering from an illness. Such soldiers often defined themselves as failures and in addition were separated from their groups and the support that came with them. Salmon consequently introduced ways of dealing with this problem. His principles (Salmon, 1917), which became the foundation of “Forward Psychiatry”, comprise “Proximity”, “Immediacy” and “Expectancy” (PIE). Soldiers should be taken care of close to the front immediately after their breakdown and with a high expectancy that they
would regain their strength and return to the front. Later on another acronym was also used to describe forward psychiatry in the allied nations: BICEPS (brevity, immediacy, centrality, expectancy, proximity and simplicity). This “cure of functioning” was elaborated by Brock (1918) and later resulted in principles of treatment, the “7 Rs”: Recognition, Respite, Rest, Recall, Reassurance, Rehabilitation and Return to duty. At the beginning of WW II, evacuating soldiers from the front line again was the primary form of treatment. This obviously resulted in a major loss of manpower (Stouffer et al. 1949). As mentioned earlier, the lessons learned in WW I that early interventions have positive effects was forgotten. Later in WW II, however, when shortage of manpower became critical it was necessary to re-evaluate the situation. The use of early intervention again achieved higher return rates and became the leading strategy (Shepard, 2000). In the Korean War the history of WW II repeated itself. Salmon’s principles were once again introduced to help soldiers and to maintain the level of manpower (Glass, 1954).

The Vietnam War and post-traumatic stress disorder (PTSD)

Like the previous wars, the Vietnam War took place overseas from an American point of view, but in many aspects the similarity ends there. The war was fought during an era influenced by the Cold War and great political and social changes in the Western Hemisphere. The idea behind and meaningfulness of the war was questioned by many people, including in the soldiers’ home countries. Due to a poorly organised American selection system, vulnerable individuals were over-represented among soldiers. Drug abuse and disciplinary problems consequently were common. Over-representation of individuals from lower social groups and minority groups were frequent negative manifestations. Since opposition to the war was also growing in the United States, soldiers returning home were mostly not treated as heroes. This was in sharp contrast to the warm welcome soldiers from previous wars had experienced. In the aftermath, many soldiers had to deal with their war trauma in a society in which their endeavours were questioned. The United States sent about 3 million soldiers to Vietnam over the years. Around 50 000 of them died in the Vietnamese jungle and it is estimated that approximately 100 000 committed suicide back home, after the war. It is said that in all 800 000 to 900 000 former American soldiers have suffered from what has since been diagnosed as post-traumatic stress disorder (PTSD). The introduction of the diagnosis of PTSD in DSM-III, DSM-III R and later in DSM-IV (American Psychiatric Association, 1980, 1987, 1994) became an instrument to meet the need to label the suffering that Vietnam veterans were facing.
Those suffering from PTSD have experienced a **significant event**, which is of a threatening or traumatic nature. In addition they repeatedly **relive** the experience through nightmares or sudden mental images of the event, known as flashbacks. The individual tries to overcome the reliving of the event by **avoiding** any circumstances that remind him of the experience. Finally, lapses in memory of important aspects of the trauma, problems with sleeping, aggressive outbursts, difficulty in concentrating or jumpiness in response to noise can occur.

The establishment of PTSD also led to increased research, initially on Vietnam veterans and subsequently on natural or non-natural disasters as well as in criminal violence (McFarlane, 1988b; Shore et al. 1986, 1989; Steinglass & Gerrity, 1990; Kilpatrick and Resnick 1993; Smith & North, 1993). The study of Vietnam veterans in particular contributed greatly to the understanding of PTSD (Kulka et al. 1990, 1991; Davidson & Fairbank, 1992). The incidence of PTSD in combat veterans varies in different studies. Helzer et al. (1987) found it to be 6.3% in general among American combat veterans. Solomon and Benbenishty (1986) found chronic PTSD rates as high as 56% in Israeli soldiers 2 years after combat exposure in the war in Lebanon in 1982. The most extensive epidemiological study with the aim of discovering the long-term psychiatric effects of combat was the National Vietnam Veterans Readjustment Study (NVVRS). The prevalence of PTSD in Vietnam veterans up to 19 years after the war was 15% (Kulka et al. 1990). Later, in the first Gulf War, approximately 9% exhibited PTSD (Rosenheck et al. 1992).

Psychiatric disorders after combat are positively associated with the degree of trauma the soldiers have experienced, for instance witnessing or participating in atrocities or being wounded (Ursano, 1981; Kulka et al. 1990, 1991; Sutker et al. 1991). Greater exposure to combat is also related to higher rates of PTSD, depression and alcohol abuse (Kulka et al. 1990).

### Stress and mental health in personnel serving in peacekeeping operations

During the past decade, following the end of the Cold War, there has been an increasing need for peacekeeping and peace-enforcement operations throughout the world. It also appears that there has been a shift from pure peacekeeping operations led by the United Nations (UN) towards more peace-enforcement operations, sometimes commanded by NATO. This change could be explained by an increasing number of conflicts within countries, for instance in the Balkans. Weisaeth (2003) describes this as a change from “blue” helmets to “green” helmets and also discusses the differences in the psychological challenges in these different missions. He argues that personnel in UN peacekeeping missions are sometimes subject to
higher levels of stress than in peace-enforcement operations and that the former are predominantly a mix of political, humanitarian and military objects. Hence, soldiers in peacekeeping missions tend to report a need for more training than those in peace-enforcement missions (Johansson, 2001).

Research on stress and mental health among peacekeepers was not very common in the past. However, since the increased need for peace-enforcement operations and the increased involvement of more influential nations, such as the US, the UK and others, and also organisations such as NATO, there have been an increasing number of studies on personnel serving in peacekeeping operations. The mental health status of personnel following these missions often seems to vary as a function of the intensity of the conflict in which they serve. There is a risk of peacekeepers being involved in combat situations. In a Swedish peacekeeping mission in the Congo in the early sixties, 0.5% of the soldiers were killed and 2% were wounded (Kettner, 1972). After Swedish soldiers had been exposed to combat during the peacekeeping mission in Congo in the early sixties, 3.5% of them had become unfit for further duty (Kettner, 1972). Kettner also found that in the group exposed to combat those below the age of 21 fared worst. In high-intensity conflicts with many war-like situations, the main focus was on PTSD. In a study on US soldiers serving in Somalia, eight per cent met the diagnostic criteria for PTSD (Litz et al. 1997). In another study, one third of 3,461 active-duty US military personnel who also served in Somalia met criteria for psychiatric caseness (Orsillo et al. 1998). A high level of PTSD (16%) was found in a study of British soldiers serving in the early stages of the conflict in the former Yugoslavia (Baggaley et al. 1999). A confounder in this study was that most of the soldiers had previously served in Northern Ireland. In a follow-up study of former Norwegian peacekeepers, 5 per cent were suffering from PTSD more than six years after service (Mehlum & Weisaeth, 2002).

In low-intensity conflicts, PTSD may not be the main problem. Instead peacekeepers find themselves exposed to cumulative stress, resulting from boring missions and the ambiguity often present in peacekeeping operations (Lundin & Otto, 1989; Carlström, Lundin & Otto, 1990; Lundin & Otto, 1992; Elklit, 1998; MacDonald et al. 1998; Huffman et al. 1999). Among the stressors that peacekeepers encounter, frustration is very common due to the problems in reaching negotiated solutions in these types of conflicts (Weisaeth, 2003). Peacekeeping personnel being harassed and humiliated by the warring parties or the local population is not uncommon either. In Somalia 76% of the US soldiers reported that they had had stones thrown at them and 65% that they had been shot at (Litz et al. 1997). During the period of the UN mission in the Balkans between 1993 and 1995, 17% of Swedish personnel reported that they had been fired upon and 27% that they had been exposed to artillery shelling by the warring parties (Johansson, 2001). Being shot at evokes strong aggressive impulses, and peacekeepers, in contrast to
peace-enforcement personnel, do not always have the ability to express their anger verbally or through activity. This need for “neutrality” might increase the risk of developing psychiatric problems (Weisaeth, 2003). Troops trained for active combat duty who are engaged in peacekeeping missions also tend to suffer boredom and end up in role conflicts (Rikhye et al. 1974; Segal et al. 1990). In a British study by Hotopf et al. (2003), the main risk factors for stress symptoms in personnel serving in Bosnia are: lower rank, being deployed early in the campaign, having more deployment-related exposure, and serving in staff duties. There is no protective effect of previous deployments to the Falklands or Northern Ireland, and time off following deployment is not protective. On the other hand, in a study on peacekeeping in Kosovo, Maguen et al. (2004) find a low degree of post-deployment psychopathology. Self-engagement can be one protective measure. Britt & Bliese (2003) show that soldiers who are committed to their job reported less elevation in reports of psychological distress than soldiers who are disengaged from their job.

Research on predictors for mental health is mostly done on individuals with PTSD in whom personality traits such as neuroticism are correlated with subsequent development of PTSD (Breslau et al. 1991; McFarlane 1992; Schnurr et al. 1993; Carlier et al. 1997; Fauerbach et al. 2000). This is also shown in peacekeeping personnel (Bramsen et al. 2000). Mehlum and Weisaeth (2002) found that exposure to stressful events, lack of meaningfulness during a mission and stressful life events after service contributed to the development of post-traumatic stress reactions in former peacekeepers. Although some research has been done, we need to know more about what specific factors before, during and after deployment influence general mental health in Swedish peacekeepers. It is hoped that increased knowledge in this field could thus contribute to improvements in selection processes.

Early group interventions and psychological debriefing

The view that early interventions could have positive effects rests partly on descriptions by Caplan (1964). He considers that it might be possible to avoid a negative outcome after traumatic events by using preventive techniques. Others also show such positive effects in dealing with sorrow and the death of relatives (Raphael, 1977; Parkes, 1980) and after accidents (Bordow & Porrit, 1975). Others instead find that such preventive measures do not show any positive effects (Polak et al. 1975). After the introduction of the diagnosis PTSD in 1980, a great deal of attention was drawn to attempts to prevent the development of mental disorders following traumatic events (Raphael et al. 1983). A model known as “Critical Incident Stress Debriefing” (CISD) was introduced by Mitchell (1983), implying a
structured way of taking care of emergency personnel after they have been exposed to traumatic events such as disasters and accidents. In the last decade this type of intervention has become quite common in civilian contexts, such as after major disasters and following minor traumatic events faced for instance by firemen, hospital staff, police officers and social workers (Mitchell & Bray, 1990; Mitchell & Everly, 1995). This stress-management technique is recommended as suitable for groups exposed to traumatic events and capable of preventing subsequent stress disorders (Raphael, 1986; Armstrong et al. 1995). Most participants also tend to take a positive view of these kinds of sessions, which is clearly confirmed in a follow up of approximately 1 000 psychological debriefings held in various professional groups in Sweden (Larsson & Österdahl, 1996).

Psychological debriefing as a tool following traumatic events also has a long history in military settings. The chief historian of the U.S. Army during WW II, S.L.A. Marshall, developed a method to obtain comprehensive descriptions of combat events (Marshall, 1944, 1947; Spiller, 1980, 1988). Marshall’s technique, known as “historical group debriefing” (HGD) was primarily conceived as a method of gathering historical data and did not include deliberate psychological interventions to reduce distress in individuals or groups. However, HGD does include elements of cognitive reconstruction, validation of individual experiences and supportive acceptance and is found to have positive effects. Due to these experiences and the fact that it is in line with Salmon’s principles, the CISD concept is easily adopted in the military. This has been subsequently enhanced since positive effects of psychological debriefing have been shown in various military settings (Ford et al. 1993; Shalev, 1994; Lundin, 1995; Shalev et al. 1998). Psychological debriefing is thus becoming widely used in both civilian and military settings.

It is natural and legitimate to scientifically investigate phenomena that are in such wide use. Some critics argue that there is a lack of systematic knowledge of how psychological debriefing functions and whether it makes an impact on individuals who have experienced stressful or traumatic events. Eight studies are included in a critical Cochrane review by Wessely et al. (2000). In these studies individual participants were mainly recruited from emergency rooms and had experienced different traumatic events, such as burns or dog bites. These individuals were then randomised to either one session of psychological debriefing, on average lasting about 44 minutes, or alternatively a brief counselling session. Follow up was conducted 13 months later. The dropout rates in some of the studies included were high. Some of the studies showed that there was no difference in the rate of PTSD at follow up and in some studies an even higher rate of PTSD was found among those who had been given a psychological debriefing session. In a later review (Rose et al. 2002), the authors argue that psychological debriefing can harm people and should be abandoned. These reviews have
been criticised for various reasons. The main criticism levelled at the Cochrane reviews concerns the definition of psychological debriefing: when psychological debriefing was introduced by Mitchell & Everly (1995) it was outlined as a group intervention and a part of an intervention system primarily designated for emergency personnel. Giving traumatised individuals one session of psychological debriefing for about 44 minutes and nothing more is regarded by some critics as unethical. Other problems with the Cochrane review are the dropout rate and the fact that the individual’s prior trauma history is not accounted for. On the other hand, other studies also cast doubt on the efficacy of psychological debriefing (Bisson et al. 1997; Hobbs et al. 1996; Lee et al. 1996).

There are some problems in conducting research on psychological debriefing. At a general level, concepts need to be clarified, potentially favourable mechanisms need to be analysed and short- and long-term effects need to be studied more closely (Dyregrov, 1989; Mitchell & Bray, 1990). More specifically, common research problems in this area include lack of prospective studies, small sample sizes, lack of control groups, varying types of debriefing, varying times of assessment and varying methods of assessment (Deahl et al. 1994; Mitchell & Bray, 1990). The lack of prospective studies is particularly problematic because this prevents evaluations of the importance of pre-trauma personality and existential conditions for post-trauma reactions. Existing research in the general field of stress and trauma suggests that personality characteristics affect how a person copes with and reacts to traumatic events (Gal, 1995; Hewitt & Flett, 1996; Rosenbaum, 1988). Antonovsky’s (1987) concept, Sense of Coherence, with its three components (comprehensibility, manageability and meaningfulness), is another stable person-related characteristic. It includes existential beliefs and is similarly seen to co-vary with health and well being in stressful conditions (Antonovsky 1993; Larsson et al. 1994).

A notable exception to much of the aforementioned criticism is a study by Deahl et al. (1994) of 62 British soldiers after the first Gulf War. About two thirds of these soldiers received psychological debriefing; one third did not. No difference regarding mental health was noted between these two groups 9 months after service. However, as pointed out by the authors themselves, this is a small study that is also affected by other methodological problems such as lack of detailed records of the debriefing sessions. Another problem in this study appears to be the timing and context of the debriefing sessions. A psychological debriefing was organised “as soon as possible, either in the Gulf or on return to the UK” (p. 61). In another study by Deahl et al. (2000) in which 106 British soldiers returning from UN peacekeeping duties in the former Republic of Yugoslavia were studied, it is concluded that psychological debriefing might well have been a benefit.

In spite of this ongoing discussion about psychological debriefing, it is still found useful as one tool in the management of stress reactions in
military settings (National Institute of Mental Health, 2002; Veterans Health Administration, Department of Veterans Affairs and Health Affairs, Department of Defence, 2003). Since this practice is widely used, the following is therefore recommended: psychological debriefing should be used only in organised groups that have been briefed beforehand, for instance the military; it should be seen as only part of a range of measures following traumatic incidents; screening for high-risk individuals and those with high symptom levels should precede the session; these identified individuals should be excluded, and finally any participation in psychological debriefing should be voluntary. In a later study on psychological debriefing in military settings by Litz et al. (2004), again no protective features against the risk of developing PTSD are found. However, it is also confirmed that military personnel are in favour of psychological debriefing and that it does no harm.

Leading researchers on psychological debriefing (e.g., Mitchell & Bray, 1990; and Mitchell & Everly) emphasise the timing and context of psychological debriefing sessions. Soldiers or other professional groups who have shared highly stressful experiences tend to talk to each other spontaneously about it. More or less formally structured ventilation or defusing sessions led by the ordinary group leader also occur frequently. According to these researchers, psychological debriefings should be seen in the context of such preceding forms of support. However, no data on peer support or defusing sessions are provided in most of the studies mentioned above. Furthermore, not many studies have been carried out on the effect of the support at the lowest level of command, although positive findings in this field have been discussed as experiences in Israel (e.g. see Gal, 1986; Milgram, 1986; Solomon, 1993).

Personality disorders among peacekeepers

Personality disorders are not uncommon in civilian communities. Studies have shown that the prevalence of personality disorders in the general population varies in different studies between 9 and 13% (Zimmerman & Coryell 1990; Maier et al. 1992; Ekselius et al. 1994; Torgersen et al. 2001; Samuels et al. 2002). Different methods of assessment; interviews or questionnaires are used in these studies. Paranoid personality disorders are seen in less than 2 to 2.4% of a population (Torgersen et al. 2001; Samuels et al. 2002; Ekselius 1994). Schizotypal personality disorders seem to vary in populations between less than 1% and 5.6% (Zimmerman & Coryell 1990; Torgersen et al. 2001; Samuels et al. 2002; Reich et al. 1989). Borderline personality disorders vary in populations between 0.5% and 4.6% (Torgersen et al. 2001; Samuels et al. 2002; Ekselius 1994). Reich et al. (1989) and Zimmerman and Coryell (1990) found a prevalence of obsessive-compulsive
personality disorders of between 4% and 6.4%. A study that uses the same questionnaire as the present study shows a prevalence of 11.1% personality disorders in a Swedish community sample (Ekselius et al. 2001). In that study paranoid personality disorders are found in 5.6%, schizotypal in 5.2%, borderline in 5.4% and obsessive-compulsive in 7.7% of the population.

Few studies have been made of personality disorders in military settings. However, one study by Gundersen and Hourani (2003) evaluated the incidence of first hospitalisations for personality disorders in the U.S. Navy. Rates per 100 000 person-years were registered in this study. Gender differences were pronounced. The most common personality disorders among men are (rates per 100 000 person-years): dependent 47.9, schizoid 32.4 and antisocial 30.7. Among women, the most common personality disorders were histrionic 97.2, dependent 68.2 and schizoid 23.3 (rates per 100 000 person-years).

Individuals with personality disorders are at risk of ending up with other problems. A high degree of personality disorders according to DSM-IV (56%) was found in a population of 130 Swedish male prisoners (Longato-Stadler et al. 2002). Other studies show a high frequency of borderline personality disorders (68%) among patients with PTSD (Shea et al. 1999). Despite this, outpatients with a diagnosis of co-morbid borderline personality disorders and PTSD do not differ from outpatients with borderline personality disorder without PTSD (Zlotnik et al. 2002). Often the life situation is impaired in both groups. A co-morbid diagnosis of axis I disorders and axis II personality disorders is shown to yield a poorer outcome (Bank & Silk 2001), and the levels of quality of life also seem to be reduced in individuals with personality disorders (Narud & Dahl 2002). We also know that those with personality disorders have a greater lifetime history of previous suicide attempts (Suominen et al. 2000; Pirkis et al. 1999) and that patients with borderline personality disorders do not markedly differ from those suffering from a mood disorder in that sense (Soloff et al. 2000).

Personality traits and personality disorders among peacekeepers and their consequences are less well known. In view of what has been said above, there is a need to increase our knowledge in this field.

Suicide in military settings

The suicide rate in Sweden has shown a steady and stable decline since the 1960s and 1970s. In 1999 the suicide rate was 20.9 cases (29.5 men and 12.7 women) among 100 000 inhabitants over the age of 15 (Wasserman, 2003). This suicide rate puts Sweden in a middle-ranking position among the European countries. Nevertheless, suicide is the most common cause of death in the 15-44 age group in Sweden. During wartime, it is hypothesised
that the suicide rate is lower in the general population (Lester, 1991; Lester & Yang, 1994)). A higher suicide rate is found among individuals in a community that suffers from higher levels of stress or post-traumatic stress disorder (PTSD) (Paykel et al. 1975; Davidson et al. 1991).

Suicide rates in military settings overall are lower than in the general population (Kang & Bullman, 1996; Hourani et al. 1999) but depend on what population and what situation is being studied. Kramer et al. (1994) show a lower suicide rate among Vietnam veterans during war but an increased risk after the war. Other studies of war veterans find an increased incidence of accidents, suicide attempts and completed suicides often related to PTSD (Hendin & Polliger Haas, 1991; Campion, 1996; Fontana & Rosenheck, 1995; Bullman & Kang, 1994; Goodale, 1999). In studies of conscripts in the Scandinavian countries, Finland (Schroderus et al. 1992), Norway (Engelstad, 1968; Hyttten & Weisaeth, 1989) and Sweden (unpublished data), a lower suicide rate is found than in the general population, in some studies half the rate. Such results are also found in studies in Germany (Brickenstein, 1967), the United States (Rothberg et al. 1988) and Singapore (Lim & Ang 1992).

A few studies have looked at the suicide rates in peacekeepers. A Danish study (Jessen et al. 2002) found 4 suicide cases in a contingent of 3,859 soldiers where the expected rate would have been 3 cases. However, two of the suicides actually happened one month before deployment and the number is also too small for any conclusions to be drawn. An increased risk of suicide was found in Finnish peacekeeping personnel, in a group that for various reasons was sent home before the end of the mission (Ponteva et al. 2000). In a case-control study (Wong et al. 2001) comparing 66 suicides among Canadian peacekeepers between 1990 and 1995, with two control groups, no increased risk of suicide in peacekeepers was found except among a subgroup of air-force personnel. An interesting result was shown in a Norwegian study of 22,275 peacekeepers (Thoresen et al. 2003). A moderately increased risk of suicide was found among the former peacekeepers compared to the general population. This risk was increased among peacekeepers that were not married. The results of the latter study are hard to explain since it is hypothesised that the suicide rate would be lower among Norwegian peacekeepers, primarily due to selection processes.

Much has been said about mental health of former peacekeeping personnel in Swedish media. Until now no studies have been conducted to answer questions regarding suicide rates among former Swedish peacekeepers. The aim of this work was to plug that gap.
Ethics
Ethical approval was granted both for the study on the battalion in Bosnia and for the register study.

Aim of this thesis
Most of the peacekeeping operations Swedish personnel have taken part in are low-intensity conflicts, and there is a lack of prospective studies focusing more on general mental health than on PTSD in such settings. Factors before, during and after deployment that can influence poor mental health in Swedish peacekeepers need to be explored. Are peer support and defusing sessions led by platoon leaders of any value when dealing with traumatic experiences during service? We do not know much about the rate of personality disorders and their impact on general mental health in peacekeepers. Furthermore, the ultimate result of poor general mental health, suicide among former peacekeepers, needs to be addressed. The general aim of this thesis was therefore to shed some light on these aspects.

The specific aims were to:
Study the general mental health situation and the effect of traumatic experiences among peacekeeping personnel by using a longitudinal approach.

Identify factors that could be viewed as predictors for reported poor general mental health.

Evaluate the influence of different forms of support on post-deployment general mental health.

Investigate the rate of personality disorders in peacekeeping personnel and their impact on general mental health.

Investigate the suicide rate among former Swedish peacekeeping personnel.
Material and methods

Participants

Paper I-III

Between 1993 and 1999, Sweden deployed 13 mechanised battalions in Bosnia. Part of this work (papers I-III) was based on data collected from one of them (the Sixth Battalion), which was deployed from March to October 1996 within the framework of a NATO-PfP-IFOR mission. Serving in the battalion were 724 individuals. Except for the commander, all the personnel were volunteers. Eleven per cent were regular army officers, and the majority of the remainder were civilian former conscripts. Most of the women in the battalion were non-conscript civilians who had attended a three-week military combatant course. Of those taking part in this study, 180 (35%) had served in prior peacekeeping missions, some in more than one. Unfortunately we did not have access to records of prior traumatic experiences in that group.

All personnel were asked to complete a questionnaire before deployment, immediately after returning, six months after returning, and after one year. Of the 724 individuals in the unit, 510 (70.4%) took part at the beginning of the study (paper I). Some cases were missing initially, for administrative reasons, but were included later so that 514 (71%) (paper II) and 516 (71.3%) (paper III) took part in the later part of the study. At the 6-month follow up 395 (77%) of the participants (55% of the entire unit) responded, and at the 1-year follow up 365 (71%) of the participants (50% of entire unit) responded. Complete responses on the GHQ-28 on all four assessment occasions were obtained from 316 individuals (61%).

The mean age of the respondents at the pre-deployment assessment was 27.6 years (SD = 6.4), with a range from 20 to 53 years. Most of the participants (96%) were men.

Paper IV

The cohort studied in paper IV was made up of all Swedish individuals, both men and women, who had served in international UN or NATO peacekeeping missions from 1 May 1960 to 31 December 1999 and consisted of 39 825 individuals. The vast majority were men. The
distribution of gender and age in the cohort at the end of the study was normal over the five-year age groups except for a dip in the group of 50-54-year-old men. The total numbers of deaths in different age groups were also normally distributed when the study ended.

Since the purpose was to study suicides that specifically occurred after serving in peacekeeping missions, we excluded 57 individuals who had died mainly due to accidents during service abroad, so that the final number of participants was 39,768. In Sweden every person has a unique personal identity number. The personal identity numbers of the investigated cohort were supplied by the Swedish international command, which was the unit responsible for Swedish peacekeeping missions.

Swedish personnel signing up for participation in peacekeeping missions are all volunteers and are often 20 – 25 years old. Most of the personnel are former male conscripts selected in three steps before it is possible for them to participate. The first step in the selection process takes place before conscription at the age of 18. These young men undergo a thorough medical evaluation in which their physical fitness is tested and their intellectual capacity is screened. A psychological evaluation by a psychologist is also performed in order to 1) disclose any personality traits that make the individual unfit for military duty and 2) screen for leadership potential. The second selection step is a result of the conscription service. Conscripts interested in applying for participation in a peacekeeping mission have to be good soldiers and be in the upper third of the marking scale when they end their conscription service. A third and final selection takes place after application and acceptance for peacekeeping service. During this period, when the unit is formed and trained for the actual mission, the commanders evaluate the individuals, with those who are found not to be fit enough, in a broader sense, not being able to join.

Sweden contributed personnel to international peacekeeping missions during the studied period in the following countries/regions: Gaza 1956-1966; Congo 1960-1964; Cyprus 1964-1993; Sinai 1973-1979; Lebanon 1980-1993; Saudi Arabia 1991; Kuwait 1991; Somalia 1993; the former Yugoslavia (Bosnia, FYR Macedonia and Kosovo) 1993-2000. Of these missions, those that could be characterised as being high-intensity conflicts, or as including such elements, would be periods in Gaza, Congo, Lebanon, Saudi Arabia, Kuwait and the early periods of the missions in the former Yugoslavia. The rest could be regarded as low-intensity conflicts, although still entailing a risk of service personnel being exposed to potentially traumatic events.

After serving one or more 6-months periods in peacekeeping missions, most individuals returned to their civilian life and employment. Military personnel, comprising about 5 - 10% in a unit, went back to their regular work in the Armed Forces back home.
Methods

Pre-deployment assessment (paper I)

The pre-deployment questionnaire included socio-demographic data and the following three questions about pre-deployment stressors (Yes/No response format): “Have you had long-term problems in your marriage/cohabitating relationship or family?” (henceforth labelled “prior family problems”), “Have you ever thought of taking your own life?” (henceforth labelled “suicide thoughts”), and “Have you ever tried to kill yourself?” (henceforth labelled “suicide attempt”). These were the same variables that were used in the UNIFIL study by Weisaeth et al. (1993).

The following instruments were also used on the pre-deployment assessment: Personality was mapped using the Five-Factor Personality Inventory (FFPI; Hendriks 1997), which is based on what is known as the Big-Five model of personality (see e.g., Costa & McCrae, 1985). The FFPI consists of 100 items: 20 are designed to measure each of the following five factors: Extraversion (e.g., “Takes time out to chat”), Agreeableness (e.g., “Goes out of his/her way for others”), Conscientiousness (e.g., “Loves order and regularity”), Emotional Stability (e.g., “Thinks that all will be well”), and Intellect/Autonomy (e.g., “Decides things on his/her own”). Responses on all items could range from 1 (not at all applicable) to 5 (entirely applicable). Scores could range from –40 (lowest degree) to 40 (highest degree) on each of these scales. In this sample, Cronbach’s alpha ranged between .72 and .82 on the 10 subscales constituting these scales.

Sense of coherence (SOC) was measured using Antonovsky’s (1987) 13-item short version of the SOC questionnaire. Examples of items are “Do you have the feeling that you don’t really care about what goes around you?” (designed to measure meaningfulness) and “How often do you have feelings that you are not sure that you can keep under control?” (designed to measure manageability). All items had 7-point response scales with the anchors defined. A scale score was computed by adding the scores of all individual items. Scores on the SOC scale could range from 13 (lowest sense of coherence) to 91 (highest sense of coherence), and a Cronbach’s alpha of .80 was obtained.

The General Health Questionnaire (GHQ-28; Goldberg & Hillier, 1979) was used to assess general mental health on each assessment occasion (papers I-III). The GHQ-28 consists of 28 items. Each item has 4 response choices ranging from 0 (most favourable) to 3 points (least favourable). Cronbach’s alpha ranged from .81 to .92 on the four assessments.

Following the suggestions of the test constructors (Goldberg & Hillier, 1979), an alternative scoring method was also used, where replies were coded 0-0-1-1. Scores could range from 0 to 28. When this method is used, a total score of 5 across all 28 items indicates that there is a 50% probability that the respondent is a “psychiatric case” (McDowell & Newell, 1987, p.
or has a score “equivalent to the average patient referred to a psychiatrist” (Bowling, 1995, p. 77).

Post-deployment assessment (paper I)

Directly upon returning home, all personnel took part in a three-day homecoming programme, the aim of which was to sum up the mission, screen for those needing individual support and prepare for return to families. During this period we conducted a post-deployment assessment in which the participants were asked the following question, eliciting six behavioural responses regarding the occurrence of traumatic events during their service in Bosnia: “Have you during your service been involved in a particular event according to the list below which you experienced as very stressful (circle Yes or No)?” The list contained the following six types of events: “Any kind of firing very close,” “Threats with weapons pointed at you,” “Taken prisoner or hostage,” “Seen wounded, maimed, or dead people,” “Been involved in a serious accident (What...),” and “Other situation (What...).” A composite service trauma exposure score was computed by counting all individuals who had scored “Yes,” on at least one of the above six items.

Respondents indicating yes on any of the traumatic event alternatives were asked to respond yes or no to three follow-up items related to received support. The question read: Did you receive any support or help of the following types: (1) Peer support = A friend helped you by sitting down and talking to you in connection with the event; (2) A ventilation session = Your platoon leader (or similar leader) gathered your group the same day that the event occurred and you went through what had happened and were given opportunities to express your feelings; and (3) A debriefing session = A group session 1-3 days after the event which was led by an external counsellor with the aim of providing an opportunity to work through the event regarding facts, thoughts and emotions. For each of the three support types, a follow-up question regarding perceived quality of support was asked if a participant had responded “Yes”. This question read: “How would you describe the peer support/ventilation/debriefing session?” A 5-point response scale, ranging from 1 (very poor) to 5 (very good) was used for these questions. Drawing on the conceptual framework developed by Mitchell and Bray (1990), a ventilation session is henceforth labelled defusing.

The post-deployment assessment also included one additional instrument designed to measure reactions to traumatic events. The Impact of Event Scale (IES), developed by Horowitz, Wilner and Alvarez (1979), was used. The IES consists of 15 statements related to reactions to a particular event. Seven items were designed to measure Intrusiveness (e.g., “I have dreamt about it”), and eight were designed to measure Avoidance (e.g., “I have tried to avoid talking about what happened”). The response format was a
four-choice scale with numerical values of 0 (not at all), 1 (seldom), 3 (sometimes), and 5 (often). A scale score was computed by adding all 15 responses (Cronbach’s alpha = .87). Thus the scale score could range from 0 to 75. In one of the analyses, scores of 31 or higher were used to define critical cases. According to Lundin (1995), scores between 31 and 40 indicated “a traumatic stress reaction with a certain likelihood of post-traumatic stress disorder” (p. 27, our translation).

One-year follow up (paper II and III)
Follow-up assessments were conducted by sending participants questionnaires by mail six months and one year after they had returned from duty. No reminders were sent. At the one-year follow up, three different questionnaires were used. The GHQ-28 described above was used again to measure general mental health.

Potential post-deployment stressors were registered by using a questionnaire (Yes/No response format), made up of the following nine questions: “Since arriving home from the mission in Bosnia I have”: “Had relationship problems,” “Had financial problems,” “Experienced a breaking up with girlfriend/boyfriend,” “Experienced a divorce/broken cohabitating relationship,” “Had serious illness of my own,” “Experienced illness of a close relative,” “Experienced the death of a close relative,” “Experienced a serious traffic accident,” “Had other problems.” A composite post-deployment index, “Stressful life events post-deployment,” was computed by counting all individuals who had scored “Yes” on at least one of the above mentioned nine items.

Personality disorders were measured using the DSM-IV & ICD-10 Personality Questionnaire (DIP-Q) constructed by Ottoson et al. (1995; 1998). DIP-Q is a 140-item true/false self-report questionnaire designed to measure all ten DSM-IV and all ICD-10 personality disorders. The ICD-10 schizotypal disorder is also included. The diagnostic criteria for each personality disorder are covered by 135 items. Twenty-one items are reversed so that “false” indicates that the corresponding criterion is fulfilled. In DIP-Q an impairment/distress scale (ID scale) that consists of 5 items and a self-report version of the Global Assessment of Functioning Scale (GAF) are used to define the general criteria for personality disorders. The cut-off score for fulfilling the general criteria on the ID scale was set to two or higher and a score of 70 or less on the GAF scale. To meet a categorical diagnosis of personality disorders thus required that the number of criteria for the specific personality disorder reached the level specified by DSM-IV and ICD-10 and also that the general criteria were fulfilled. Although ICD-10 personality disorders were also registered, the main focus in this study is on DSM-IV personality disorders.
Register study (paper IV)

During the studied period Sweden has not had any professional army to compare our cohort with, and we compared it instead with the total population in the cause of death registry. One problem in our study was that we did not have access to the real start date of the observation period for each person. The start of the observation period was therefore set at the age of 20 or the year of 1960. The observation period ended at the time of death, at the age of 60 or at the end of 2001. We had no access to information on the proportion of emigrants in our cohort, but it is believed not to have any major influence on the results.

The classifications of causes of death are those of the WHO International Classification of Diseases (revisions 7 to 10; World Health Organisation 1957, 1967; 1977; 1992). The causes of death were classified into five categories: 1) Suicide (ICD-7 codes 970-979; ICD-8 codes E950-E959; ICD-9 codes E950-E959; ICD-10 codes X60-X84); 2) Death by undetermined intent ("unclear cases") (ICD-7 codes none; ICD-8 codes E980-E989; ICD-9 codes E980-E989; ICD-10 codes Y10-Y34); 3) Accidents (ICD-7 codes 800-936, 960-964; ICD-8 codes 800-946; ICD-9 codes 800-929; ICD-10 codes V01-X59); 4) Murder (ICD-7 codes 980-985; ICD-8 codes 960-969; ICD-9 codes 960-969; ICD-10 codes X85-Y09); and 5) Other causes (ICD-7 codes none; ICD-8 codes 000-799; ICD-9 codes 001-799; ICD-10 codes A-R).

Statistics

The studied population in papers I-III was made up of all personnel taking part in Swedish peacekeeping units serving in low-intensity conflicts. The target population should also include those who participate in peacekeeping missions in the near future during which period the same selection procedures would still be used. Although the studied battalion was randomly chosen, there was no possibility of the individuals in the whole population being selected, for practical reasons. Hence, the sample could not be seen as a simple random sample but could instead be labelled as a convenience sample. However, since the selection procedures have remained the same in the Swedish Armed Forces for many years it would still seem reasonable to carefully make predictions and estimations about the population.

T-tests were used to compare means and Chi square homogeneity tests were used to compare groups for one variable. Comparisons of independent groups were performed using Mann-Whitney tests and also one-way analysis of variances with Scheffé tests as post hoc comparisons. Spearman correlations were used to assess the bivariate relationships between the number of traumatic events encountered during service and the pre- and
post-service measurements (*papers I and II*). Spearman correlations were also computed between the quality ratings of received support following traumatic events and the post-deployment measurements. A logistic regression analysis was performed where the dichotomised overall GHQ-28 scores on the post-deployment assessment was the dependent variable (*paper I*). The SOC, FFPI and overall pre-service GHQ-28 variables were entered first. Numbers of traumatic events were entered in the second step. Type of support received following a traumatic event, defined as categorical variable, was entered in a third step. Logistic regression analyses were also performed in order to find contributions to the odds of reporting impaired health at the one-year follow up (*papers II and III*). Thus, dichotomised GHQ-28 scores were again used as the dependent variable. In paper II the following predictor variables were entered simultaneously: prior family problems, suicide thoughts, suicide attempts, traumatic experiences during service and problems after returning. Personality disorder (DSM-IV), prior family problems, traumatic experiences and problems after returning were entered in the logistic regression analysis in paper III. In the latter study the kappa test was used to measure the concordance between DSM-IV and ICD-10 parts of the DIP-Q.

To compare our cohort in paper IV to the general population, we assumed a Poisson distribution and calculated a standardised mortality rate (SMR), which is the ratio between the observed and the expected number of cases. The observed cases are the number of deaths that actually occurred in the cohort during the studied period. For each calendar year, sex and age group, the expected number of deaths was computed by multiplying the person-years at risk with the respective cause-specific rates of death. A 95% confidence interval (CI) was then calculated. SMR was first calculated for the different causes of death in the cohort over the studied period. Since the studied period was very long (1960-1999), we divided this phase and calculated SMR specifically for suicide in five-year groups.

Overall the significance level was set at $p < .05$. 
Results

General Mental Health (papers I and II)

General mental health was measured before deployment, directly after returning home, after 6 months and at the 1-year follow up. Before deployment, the mean score, which can range from 0-28, was 1.28 (SD = 2.48) among participants responding on all measurement occasions. We found no difference between the means on the GHQ-28 across the four assessment occasions. Using a dichotomised scoring method, described in the methods section, scores of 5 or higher were regarded as representing poor mental health. Among this group the proportion of personnel meeting these criteria before deployment was 7.6% \((n = 39)\). These proportions did not differ over time on the different measurement occasions.

Traumatic events (paper I)

181 soldiers (35% of the whole sample) reported occurrence of traumatic events. The most frequently reported event was seeing wounded, dead or maimed people (129). The most common kinds of events in the “other situations” category (73), were mine accidents and witnessing fights between local parties. The category of “serious accidents” (61) included episodes in which fellow soldiers were killed or severely wounded when driving onto mines or being involved in traffic accidents. 23 soldiers reported “any kind of firing very close”, 9 individuals reported “threats with weapons pointed at them” and 3 reported that they had been “taken hostage”. Within this group of 181 soldiers, 89 had experienced one event, 72 had experienced two, 16 had experienced three, 3 had experienced four and 1 individual had experienced five events.

We compared those \((n = 181)\) who had reported traumatic experiences with those who had not \((n = 329)\). We found that the soldiers without traumatic experiences scored higher on one of the subscales of the FFPI – Agreeableness (19.61 vs. 18.08) before service. There was also a negative correlation between the number of reported traumatic events and Agreeableness. Directly after returning home those without traumatic experiences reported more favourable mean scores on the total GHQ-28.
(12.54 vs. 13.76), on the GHQ-28 subscale “Somatic Symptoms” and on the “Anxiety and Insomnia” subscale.

The mean score on the IES-15 at the post-deployment assessment was 6.6 and did not change at the 6-month or 1-year assessment. Only 7 individuals (1.4%) scored 31 or more on the IES-15 (“a certain likelihood of post-traumatic stress disorder”). Unfortunately we did not have any pre-deployment record of PTSD or IES-15 scores. We cannot exclude the possibility that some of these 7 individuals had previous traumatic experiences. Higher IES-15 scores were correlated to a higher number of traumatic events.

Potential predictors for poor mental health
(papers I and II)

We used different ways to try to find any potential predictors for poor mental health in our cohort. One way in which we did this was to compare the group that reported poor mental health directly after deployment (GHQ-28 ≥ 5) with those who had no indication of poor mental health directly after deployment (GHQ-28 < 5) (paper I). We found that soldiers who reported poor mental health directly after service in Bosnia differed from the other soldiers on several pre-deployment measurements. They had lower mean scores on the SOC questionnaire (65.13 vs. 70.04) and on the Emotional Stability scale of the FFPI (19.69 vs. 22.23). In addition, they had less favourable mean scores on the GHQ-28 (16.34 vs. 11.61).

Another way to look for potential predictors was to dichotomise GHQ-28 scores on each measurement occasion and cross-tabulate them with the three pre-deployment stress indices, (“prior family problems” “suicide thoughts” and “suicide attempt”), the deployment trauma index (traumatic events that the individual could have been involved in), and the nine post-deployment stress indices (see methods section for details) (paper II). We found that “prior family problems” and “suicide thoughts” before deployment coexisted with poorer mental health after service. Exposure to traumatic events during deployment coexisted with poorer mental health only at the post-deployment and at the 6-month follow up. Among the post-deployment stressors, “relation problems”, “financial problems” and “severe illness of close relative” coexisted with poorer mental health at the 1-year follow up.

For further investigations of potential predictors, logistic regression analyses were used to find out what contributed to poor mental health. In one of these analyses a selection of the pre-deployment variables was entered in the first step, the number of traumatic events encountered during service was entered in the second step and the type of support received was entered in the third step (paper I). We found that the only variable that was associated with the mental health directly upon returning from Bosnia (post-deployment dichotomised GHQ-28 variable) was the pre-deployment GHQ-28 variable.
The $R$ statistic indicates that SOC also made a small partial contribution to the likelihood of obtaining a poor mental health score at the post-deployment assessment.

In order to find out what combination of stressors was connected with poor mental health we divided the participants into four groups according to reported stressors: (1) no trauma in Bosnia or stressors post-deployment, (2) stressors only post-deployment, (3) trauma only in Bosnia, and (4) trauma in Bosnia and stressors post-deployment. An overall difference in general mental health (GHQ-28) was found among these four groups on all assessment occasions, except pre-deployment. The ranking order between these groups in means on GHQ-28 was as follows: lowest was the group without any stressor, followed by the group with only traumatic experience in Bosnia, the third group was the one consisting of those who reported stressors only after returning home, and finally the highest mean value on GHQ-28 was found in the group that experienced traumatic events in Bosnia as well as stressors back home (paper II).

At the 1-year follow up (paper II) another logistic regression analysis was performed to discover which of the measured factors contributed to poor mental health. The dependent variable was the GHQ-28 after 1 year (dichotomous scoring, 0-4 vs. 5-28). The model chi-square with five degrees of freedom was significant and the proportion of correctly predicted cases was 90%. The result was that "Stressful life events post-deployment" was associated with the 1-year GHQ-28 variable. The odds ratios indicated that "prior family problems" and "suicide thoughts" could also make a contribution to the likelihood of registering a poor mental health score after one year.

Effect of different kinds of support (paper I)

Among the 181 individuals who reported traumatic experiences four kinds of support were noted after the event. One subgroup ($n = 56$) reported that they had not received any support at all. A second subgroup ($n = 29$) received peer support only. A third subgroup ($n = 60$) received peer support and in addition a defusing session. A final subgroup ($n = 36$) received peer support, a defusing session and also a debriefing session. These four groups were compared. We found that the subgroup that reported that they had not received any support also reported to a lesser extent that they had “Been involved in a serious accident” and “Other situations”. They also reported a lower number of events than those receiving any support.

There was no difference between the subgroups on any pre-deployment assessments. However, on the post-deployment assessment a mean difference was noted on the overall GHQ-28 scale as well as on two subscales, Social Dysfunction and Severe Depression. The group receiving
peer support and in addition a defusing session had the most favourable score and the group receiving no support had the least favourable score. The addition of psychological debriefing sessions did not lead to a more favourable result.

Personality disorders and their impact on general mental health (paper III)

The rate of personality disorders in the studied cohort was 9.5% (n = 49). The frequency of the most common DSM-IV personality disorders we found in our study was as follows: obsessive 6.5% (n = 33); schizotypal 5.5% (n = 28); paranoid 3.1% (n = 16); avoidant 3.1% (n = 16); borderline 2.8% (n = 14) and antisocial 2.6% (n = 13). An almost identical order was found in ICD-10 personality disorders. Of the 49 peacekeepers with DSM-IV personality disorders, 3% (n = 15) had only one personality disorder, 2.2% (n = 11) had two, and 1.2% (n = 6) had three. The remaining 3.4% (n = 17) had up to 9 personality disorders. The distribution of ICD-10 personality disorders followed the same pattern. There was a high degree of concordance between DSM-IV and ICD-10 in this study. Of the 49 with personality disorders, 46 overlapped the ICD-10 and DSM-IV (kappa .932)

There were more individuals with personality disorders in the group with impaired general mental health than in the group without. This applies to DSM-IV before deployment (14 out of 49 = 28.6% vs. 25 out of 458 = 5.5%) and at the one-year follow up (8 out of 33 = 24.2% vs. 27 out of 322 = 8.4%). This is also the case regarding ICD-10 personality disorders. We found no such difference after return and at the six-month follow-up.

There were also more individuals with personality disorders among those who reported traumatic experiences during deployment than among those who did not: DSM-IV: 24 out of 49 = 49.0% vs. 155 out of 458 = 33.8%. The same results were obtained in the ICD-10 personality disorders. However, those few individuals, numbering seven, who were at risk of developing post-traumatic stress disorders, defined by IES-15 scores > 31, were not more frequent in the personality disorder group than in the non-personality disorder group. This includes all measurement occasions.

We also studied what effect personality disorders would have on general health after one year. We found that the means in general mental health, as measured by the GHQ-28, differed at all measurement occasions between those with and those without personality disorders. The same difference was also obtained among those who answered at all four measurement occasions (personality disorders, DSM-IV n = 30, no personality disorders n = 286). A logistic regression analysis also suggests that DSM-IV personality disorders contribute to the odds of reporting poor mental health at the one-year follow up. This also applies to ICD-10.
There was no difference in personality disorders between different occupational groups. Furthermore, we found no difference in personality disorders between professional military officers and other personnel.

Suicide among former peacekeepers (paper IV)

The total number of observed deaths in the cohort was almost half of the expected deaths (1140 vs. 1991.4). The total number of suicides was 182 whereas the expected number was 272.5 with an SMR value of .67 and a 95% CI of .58 - .77. The 182 suicides correspond to a suicide rate (suicides/100 000 inhabitants/year) of 11.8. Unclear cases, accidents, murders and all other causes of death were also lower than the expected cases.

The number of suicides in males was 179 and the expected number was 266.7. The SMR was .7 with a 95% CI of .58 - .78. The same difference was found in the other categories as well, with lower observed cases than expected.

Among females there were only 3 cases of suicide where the expected rate was 5.9. The SMR was .5 with a 95% CI of .11 – 1.5. The rate of observed female accidents was also 3 with an expected rate of 3.9 (SMR = .8, 95% CI = .16 – 2.27). With regard to other causes of death in females the observed rate was 22 and the expected rate 36.6 (SMR = .6, 95% CI = .38 - .91). There were no unclear cases and no murder cases among females during the studied period.

When the SMR was calculated for suicide in five-year groups we found differences between observed and expected suicides in all these five-year groups. Three suicides after the age of 60 were excluded. The closest gap between observed and expected was in the years 1975-1979, with 27 and 32.2 suicides respectively and an SMR of .83.

In some of the five-year groups suicide was more prominent, although not significantly, in certain age groups, for instance in 1975-1979 in the 30-34 age group; in 1980-1984 and 1985–1989 in the 40-44 age group and in 1990-1994 in the 35-39 age group.

Dropouts (papers I-III)

The dropouts (n = 198), on one or more assessment occasions, were compared with the participants with complete responses (n = 316) on sex, age, and each of the four GHQ-28 measurements. One difference in means emerged: the dropouts had a more favourable post-deployment mean score on the GHQ-28 (0.95 vs. 1.37), (papers I, II, III).
General discussion

Taking part in a peacekeeping operation in a low-intensity conflict led to a low degree of general mental health problems and post-traumatic stress reactions. Poor general mental health one year after returning from service was correlated with factors that existed prior to service or problems encountered after the mission. Peer support and defusing sessions led by ordinary platoon leaders could be valuable instruments after traumatic experiences. The levels of personality disorders were the same as or lower than in the civilian population and were associated with poorer general mental health after one year. During the studied period the observed suicides and other violent deaths among former Swedish voluntary peacekeepers were lower than in a comparable group of the general population. This was also the case when the studied period was split into five-year groups and suicides alone were studied.

The low levels of general mental health problems found in this work were in agreement with the findings among American troops in Kosovo studied by Maguen et al. (2004). These results from low-intensity conflicts could be compared to the relatively higher incidence of post-traumatic stress reactions in other studies from more intense conflicts (Deahl et al. 1994; Baggaley et al. 1999; Litz et al. 1997; Orsillo et al. 1998). We can note that those reporting poor mental health before deployment not surprisingly are to a great extent the same ones who also report poor mental health after deployment.

About one third of the participants had experienced traumatic situations during their service. As hypothesised, traumatic experiences during service in Bosnia only appeared to make a transient difference (the post-deployment and the 6-month assessments). Traumatic experiences during deployment only seemed to have an influence on poor mental health if combined with post-deployment stressors. Thus, taking part in a peacekeeping mission in a low-intensity conflict did not appear to result in lasting mental health problems. However, a selection hypothesis cannot be ruled out. It should be noted that most participants were young, voluntarily recruited men, who reported favourable psychological status before departing for Bosnia. Relevant reference data exist on the SOC scale, in which the same instrument was used in a nation-wide sample selected to represent the Swedish population (Larsson & Kallenberg 1996). The mean score obtained on the SOC scale in our sample (69.63) approximately corresponds to the
65th percentile in the nation-wide sample as a whole as well as in a subsample consisting of 21- to 35-year-old men.

One aim of this thesis was to try to identify some possible predictors for poor mental health after serving in a peacekeeping mission. In order to achieve this, different approaches were used, altogether indicating that some factors before deployment, during deployment and after deployment could contribute to poor mental health. Before deployment, those reporting lower mean scores on the SOC questionnaire and on the Emotional Stability scale of the FFPI reported poorer mental health. This is also the case for those reporting “prior family problems” or “suicide thoughts” which is consistent with other findings (Weisaeth et al. 1993). Regression analysis indicated that the main contributors to poor mental health one year after returning from duty abroad were problems experienced post-deployment, such as “relation problems”, “financial problems” and “severe illness of a close relative”. Personality disorders in general were related to reported impaired general mental health. Personality disorders also seem to contribute to poor mental health one year after returning home from a mission abroad in conjunction with “prior family problems” and “problems after returning.” An explanation might be that personality disorders and “prior family problems” could be an expression of vulnerability and, ultimately, might have a role in causing “problems after returning”.

It was found that the combination of peer support and a defusing session led by the platoon commander had a positive effect on post-deployment mental health in this group. These findings are promising from a practical point of view. All officers had received fairly structured training on how to lead a defusing session before leaving for Bosnia. The results indicate that this kind of training is valuable and that the lowest level of command plays an important role in the mental health of troops in a stressful context. This would be consistent with, for instance, the view of Gal (1986, p 219), “…the recognition that the only available preventive measure against excessive psychiatric casualties involve enhancing unit morale, interpersonal relationships and effective leadership”. On the other hand we did not find that the addition of psychological debriefing as a support tool resulted in a more favourable outcome in traumatised individuals. One explanation could be that it seems that those who also received psychological debriefing belonged to the group that had been exposed to more severe traumatic events than those who did not.

The rate of personality disorders in this study seems to be at the same level as, or at a slightly lower level than, the general population. The lack of studies on personality disorders in military settings prevents good comparisons. The most common personality disorders were obsessive-compulsive, schizotypal and paranoid. This means that there is a striking similarity in the prevalence of the different personality disorders among the peacekeepers in our study and what is found in the general population.
specifically compared to the study of Ekselius et al. (2001). However, compared to most other studies there might be a slight over-representation of paranoid and schizotypal personality disorders in our study. The presence of obsessive-compulsive and paranoid personality disorders might possibly be explained by both what is expected of and what could attract a presumptive peacekeeper, but one wonders what makes a schizotypal individual prone to seek such an assignment. In the absence of additional data, we can only speculate that it is the feeling of suspicion, the lack of friends back home, and certain conceptual references that eventually could drive such an individual away to an armed mission abroad. Although we find that personality disorders in general may cause problems for peacekeepers, further studies are needed to find out what kinds of personality disorders are the most problematic in this sense. This might help us to make the selection processes even better and we would perhaps in the future find even fewer personality disorders among peacekeepers.

The studied cohort in paper IV is made up mostly of men and is fairly normally distributed in age at the end of the study, except for a small dip in the 50-54 age group. Furthermore, there is no accumulation of deaths in any age group at the end of the study. An explanation for the dip referred to could be that 30 years earlier (1967-1971), when these men would have considered taking part in peacekeeping operations not many Swedish peacekeepers were needed. This was due to the fact that the only mission in which Sweden participated at this time, and had done so since 1964, was in Cyprus. However, the demand for peacekeepers increased again after the Yom Kippur War in 1973 and the Turkish invasion of Cyprus in 1974. It is also interesting to note that around this time period criticism of the Vietnam War was intense and an anti-authoritarian and anti-military movement (“the 1968 student movement”) was challenging societies in the Western Hemisphere.

The results in our study are in line with the hypothesis that there would be a lower suicide rate among former Swedish peacekeepers. Since earlier studies show that Swedish peacekeepers tend to report more favourable psychological status than a comparable sample from the general population, the selection process could contribute to the differences found in this study. We cannot find any simple explanation as to why the closest gap between observed and expected suicides is found in the five-year group 1975-1979. The age groups in which suicides were most common were 30-34 and 40-44 between 1975 and 1989, which would also be expected. There is no straightforward explanation for suicides being most common in the 35-39 age group between 1990 and 1994. Since the number of suicides was only 10 in this group during those five years the increase might just be accidental.

Care should be taken in comparing these results with other studies on suicide. Different outcome could probably be explained partly by differences in methodology, for instance the lack of information about the start time in
our study, which is discussed below. Having considered that, differences might also relate to likely dissimilarities in the selection processes in different countries that will not be elaborated here. Another theoretical, but perhaps more likely explanation could be that countries have sent peacekeepers to different missions, with perhaps different levels of conflict. There are also other differences: the Swedish sample is larger (39 768) than the Norwegian one (22 275), for instance, and the studied period is also more prolonged in this study (1960-1999) than in the Norwegian one (1978-1995).

Compared to previous investigations in this field, this work has some strengths: it uses a longitudinal design (papers I-III) that tells us about the situation over time; control for a high number of potential confounders (e.g. sex, age, education, pre-trauma psychological status, etc); sample size: there was a high response rate from the start (more than 70%), and after one year still more than 50% returned their questionnaires. This drop could, of course, cause a sampling bias, but the dropouts did not differ from those completing the study except that they reported somewhat more favourable post-deployment mental health. The strength in the register study (paper IV) was that the studied cohort was so big, the studied time period was so long, almost 40 years, and that it covered many different missions.

One main weakness (papers I-III) is related to the fact that we do not have any records of previous lifetime traumatic experiences prior to deployment. Such experiences could confound with effects of trauma experience during military duty and might explain why experiencing trauma in Bosnia did not affect the 1-year GHQ-28 outcome. On the other hand, the general low degree of mental health problems found in this study could also indicate that any confounder, be it any other lifetime or recent occurrence of interpersonal violence or other stressors, has not had a great impact on the responders over time. Other methodological weaknesses include the following: (a) since it was hard to find suitable control groups, individuals were categorised into comparison groups depending on traumatic experiences; (b) we could not fully study the impact of traumatic events since this was a low-intensity conflict; (c) it would have been a contribution to use an instrument that would also measure hyperarousal; (d) this study used self-report questionnaires only. Another weakness is that the personality disorders were assessed by the use of a self-report instrument only. Self-report instruments generally tend to overdiagnose personality disorders, which, on the other hand, would support our hypothesis that we would find a lower rate of personality disorders in peacekeepers than in the general population. Yet another weakness is that the numbers of the different personality disorders were too low to allow us to compare the impact of different personality disorders on general mental health.

There were also some weaknesses in the register study of suicides among the peacekeepers (paper IV). Firstly, we did not have any information about the start date for when every individual went on his or her tour of service.
We therefore set the start time at 20 years or 1960. Secondly, there was no information about individuals emigrating. This means that the risk period was probably too long. For instance, if an individual went on his or her tour at the age of 25 the risk period time would be prolonged by 5 years when he or she in reality was not at risk as a peacekeeper. This could lead to the difference between our studied cohort and the general population being overestimated. However, the difference between the studied cohort and the general population was so great that even a correct start time and information about emigrants would probably not be enough to explain it. Third, it would have been better to compare our cohort with a control group that had also been selected just like the studied group, but this was not possible. Instead we used the general population with comparable distributions of age and sex.
Conclusions

The general level of mental health problems and post-traumatic reactions in a low intensity conflict was low and did not change significantly over time. Traumatic experiences during service appeared only to make a transient difference to general mental health.

Possible predictors for poor mental health in peacekeepers might be: lower mean scores on the SOC questionnaire and on the Emotional Stability scale of the FFPI; personality disorders in general; family problems or psychiatric problems expressed through suicide thoughts before deployment; problems experienced post-deployment, such as “relationship problems”, “death of a close relative”, or “financial problems”.

It was found that the combination of peer support and a defusing session led by the platoon leader had some positive effects on post-deployment mental health.

The rate of personality disorders appears to be at the same level as or at a slightly lower level than in the general population.

Swedish personnel serving in international peacekeeping operations appear not to have higher suicide rates than the general population.

The selection procedure involving psychological interviews, well performed conscription training and training for the actual mission seemed to work with few psychiatric problems among the individuals.
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