

## **Risk and protective factors influencing suicidal ideation and suicidal behaviour among Danish veterans.**

Lilian Zoellner, Director, Ph.D., Centre for Suicide Research  
Denmark

Hans Ole Jørgensen, Colonel, M.D., Danish Armed Forces  
Health Services

### **Abstract**

This study describes risk as well as protective factors influencing suicidal ideation and suicidal behaviour. The method used was a registry study, a questionnaire and two interview studies. Results: Deployed Danish personnel are not at greater risk of suicidal behaviour compared to the background population. Risk factors are substance abuse, powerlessness and pointless tasks. Protective factors are ethics, coherence and meaningfulness, support from partner, family, the Danish Defence and population.

### **1. Background and previous research**

Since WW2 more than 100.000 Danish soldiers have been deployed to conflict zones around the world. Since the end of the cold war after 1990 the focus of Danish armed forces has shifted from classic territorial defence to international operations aimed at securing and improving Denmark's strategic position. This has led to widespread involvement in international operations, especially since participation in the war in former Yugoslavia and up to and including ISAF, Afghanistan.

#### **1.1 Danish research**

Very little knowledge of Danish soldiers' suicidal ideation, suicide attempt and suicides exists. In 2001, the results from a pilot project conducted by Centre for Suicide Research and the

Royal Danish Armed Forces Health Service (Hansen-Schwartz et al, 2002) showed that out of 3.895 UN personnel 4 people aged 21-31 years committed suicide between 1995 and 1997, where only 3 would be expected in the general Danish population when looking at a similar group (sex and age).

A study of Danish soldiers deployed between 1992 and 2009 (Lyk-Jensen et al, 2011) showed that the number of repatriated soldiers before their end of tour because of psychological symptoms increased from 2009 compared to previous years. It is assumed that these soldiers could be at risk of developing mental health problems.

### 1.2 Scandinavian research

A Swedish study of 39.825 UN and NATO soldiers from 1960 to 1999 (Mitchel et al., 2007) concluded that deployed personnel had a lower suicide rate than the Swedish population in general.

A Norwegian registry study of 22.275 Norwegian soldiers deployed between 1978 and 1995 (Thoresen et al., 2003) showed that veterans had an increased risk of suicide. A later Norwegian questionnaire based study (Thoresen et al., 2008) of 1172 soldiers deployed between 1978 and 1991 showed that 6% had experienced suicidal ideation within the last month.

### 1.3 European research

Fear N.T. et al., 2009 investigated the number of suicides and deaths for unknown reasons in the British army compared to the general population 1984-2007. The results showed that the number of suicides among British soldiers during that period of time was significantly lower compared to that of the general population (SMR=58).

Kapur, N. et al., 2009 describes the rate, timing and risk factors of suicide in former soldiers in the British army between 1996-2005. The results of this study did not show any overall differences in suicide rate between British soldiers and the general population, but men under the age of 25 had a 2-3 times higher risk compared to the background population of the same age group.

Most of the research into suicidal ideation and behaviour among former soldiers has been focused on risk factors. Little research into protective factors exists.

## **2. Aim**

The aim of this study was to investigate and analyse both risk and protective factors regarding suicide, suicide attempts and suicidal ideation among previously deployed Danish soldiers.

## **3. Design**

Our research project is based on four (Fig. 1) studies:

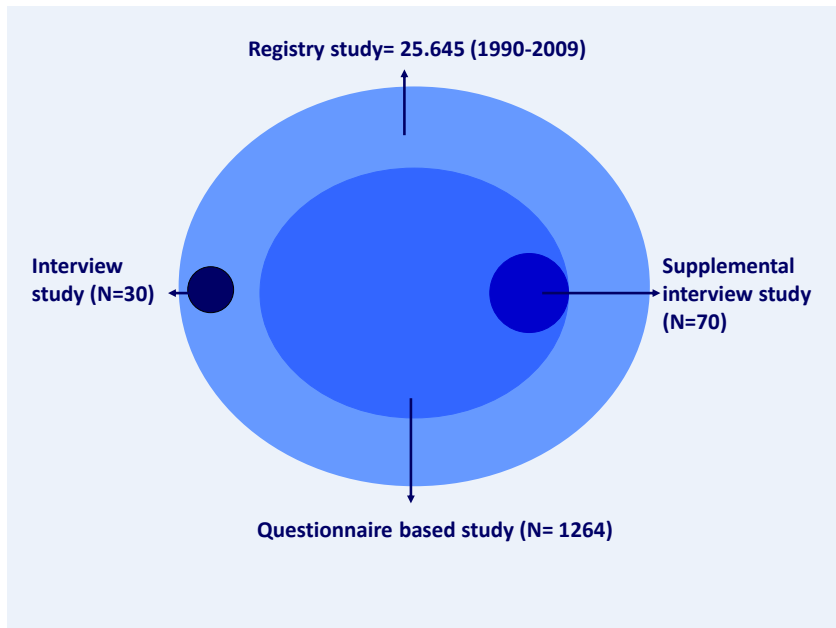
- a registry study
- a questionnaire based study
- a supplemental interview study
- an interview study

The design ensures that both persons whose suicide attempt has been registered in the Registry of Suicide Attempts and persons whose attempt has not been registered in the mentioned registry are included into this study. The design also ensures that this study will be unique compared to both national and international research based on:

- the possibility of conducting registry based studies using civil registration numbers in Denmark
- the possibility of linking data from several relevant registries

the focus on protective factors in this study is rooted in research based knowledge  
the use of three different study methods on the same data

**Fig. 1:**



### 3.1 Registry study

The study population includes all Danish soldiers deployed to international missions between 1990 and 2009. The Danish Defence registry of previously deployed soldiers is used for a cohort study together with a number of Danish registries. The linking of registry data is based on civil registration numbers.

We calculate the standardised mortality and incidence ratios of suicidal behaviour after end of tour. In addition, we conduct a nested case-control analysis in which the prevalence of suicidal behaviour after end of tour is compared to pre-deployment protective and risk factors.

### 3.2 Questionnaire based study

The questionnaire includes the following parameters: Socio-demographic data, life-changing events during childhood and adolescence, lifestyle and well-being before and after deployment, experiences/events during deployment, suicidal ideation/attempts, support/treatment, social network. Finally, the questionnaire allows the participant to sign up for an elaborated interview.

### 3.3 Supplemental interview study

The supplemental interview includes the following themes: motivation for deployment, considerations regarding risks, hope, philosophy of life, faith, religion, spirituality, values, close personal relations, recommendations to the defence.

### 3.4 Interview study

The interview study includes the following themes: socio-demographic data at the time of the interview, life-changing events during childhood and adolescence, well-being/failure to thrive during and after deployment, experiences/events during deployment, suicidal ideation/attempts, support/treatment, social network, and recommendations on protection against mental illness, suicidal ideation and suicidal behaviour.

## **4. Results**

### 4.1 Registry based results

The registry based study included 25.645 persons having been deployed 46.841 times on international missions. The inclusion

criteria were registration of: a valid civil registration number, deployment between 1990 and 2009 and to which mission. A total of 41 persons altogether being deployed 68 times between 1990 and 2009 have committed suicide. All are men aged 20-49 years. The suicides are evenly distributed over time after deployment during the study period. 13 out of 41 suicides were committed by men aged 35-49 years. The methods used by previously deployed soldiers were different from the methods used by the background population of a similar age group, as more previously deployed soldiers shoot themselves compared to background population males.

Suicides after deployment have occurred after all missions but three rotations in particular stand out. Seven soldiers deployed on UNPROFOR 4/Croatia, six soldiers deployed on UNPROFOR 3/Croatia and five soldiers deployed on UNCRO 8/Croatia have committed suicide after end of tour.

However, the analyses show that suicidal risk in the group of previously deployed soldiers is at the same level as the background population when considering that soldiers' sex and age distribution differs from that of the general population and that the suicidal rate has been declining during that period of time. The calculations have also taken deaths and emigration of soldiers into account. The small predominance of suicides is not significant.

The registry study also includes suicide attempts. "Confirmed" suicide attempts are identified searching for poisonings due to suicide attempts and poisonings involving medication registered as suicide attempts. A person attempting to take his own life often makes another attempt within a short period of time.

A total of 134 soldiers have attempted suicide. 57 persons have attempted suicides 63 times before their first deployment, 76 persons have attempted suicide 93 times after completing their first deployment and 1 person attempted suicide while being deployed. None of the 134 persons attempted suicide both before and after deployment.

Based on our calculations, previously deployed soldiers do not in general have an elevated risk of attempting suicide compared to the general population. However, there is a tendency to a lower risk of suicide attempts before first deployment than after first deployment. This could possibly be explained by a “healthy worker” effect.

#### 4.2 Results from the questionnaire study

The participants in the questionnaire study were 1.264 soldiers. Of these, 60% returned the questionnaire. All participants had been deployed between 1/1 1990 and 31/12 2009 on the following missions: UNPROFOR, UNCRO, IFOR, SFOR, KFOR, IRAQ and ISAF.

More than 16% of the veterans had experienced suicidal ideation and a little over 2% had attempted suicide once or several times. However, more than 20% of the veterans having had suicidal ideation and more than 30% of those who attempted suicide had displayed similar behaviour prior to their first deployment. Only very few had had suicidal ideation and none had attempted suicide during a deployment.

Based on the questionnaires the following risk factors of suicidal ideation and suicide attempt could be identified:

Substance abuse prior to first deployment

Having a mental breakdown during first deployment

Being injured during deployment  
Meaningless tasks during a deployment  
Thoughts of the risk of being killed during a deployment  
Experiencing a close buddy getting injured or killed during a deployment  
Seeing dead people during a deployment  
Witnessing violation of civilians during a deployment  
Heavy workload during a deployment  
Participation in an insufficient A&R programme when returning home  
Growing up with mentally ill parents  
Growing up with parents that had attempted suicide

The following protective factors against suicidal ideation and suicide attempts have been identified:

Being supported by your partner, close family, buddies, superiors during a deployment  
Supporting your partner during a deployment  
Participation in an A&R programme of quality when returning home  
Being supported by your partner, buddies in your unit and the population after a deployment

Overall, the questionnaire did not find any differences between soldiers with suicidal ideation or suicide attempts when UNPROFOR, UNCRO, IFOR, SFOR, KFOR, IRAQ and ISAF were analysed as a group.

#### 4.3 Supplemental interview study

During the supplemental interview study 70 veterans were interviewed. They had been deployed on 118 missions in total and of these, 57,6% had been to the Balkans (KFOR, UNPROFOR, IFOR/SFOR), 18,6% had been to Afghanistan



(ISAF), 14,4% had been to Iraq (OIF) and the rest (9,3%) had been elsewhere. 42,2 % had had suicidal ideation, 11,1% had attempted suicide, 70,8% had been shot at and 68,1% had experienced attacks on their camp.

The majority of the soldiers has either short-term or long-term goals in life and experience a sense of purpose of life. They express that deployment has changed them and that they have become better at concentrating their attention on getting a better everyday life upon returning home. However, more than one third feel lonely and have difficulties forming close relationships. The majority of the soldiers has lost contact with former friends after returning home. They prioritise having a happy family life and to live in freedom. The big majority had had ethical considerations regarding right and wrong, good and bad.

Protective factors against suicidal ideation and suicide attempts were an experience of coherence and a sense of purpose in life, and that a balance exists between values and goals in life with a high priority and the demands and expectations they are met with. It is crucial to the soldier's courage that he experiences support from both family, friends, Danish Defence and the population.

#### 4.4 Interview study

30 research studies were conducted with male veterans previously deployed on different missions.

The average age at the time of the interview was 34,5 years (24-45 years). 76,7% were private first class, 16,7% were sergeants and 6,6% were officers. The veterans had been deployed on 48 missions in total.

Well-known risk factors of suicidal ideation and suicidal behaviour, e.g. child neglect, suicidal transmission, and previous suicide attempts were found in a number of the participants.

The type of mission and tasks were decisive for the soldiers' evaluation of their deployment. Being in battle, experiencing a profound sense of meaninglessness, witnessing violation of civilians all greatly affected their mental well-being. Finally, the interviews indicate that it is of great importance that their relatives are doing well and that their relatives support the soldiers' deployment.

## **5. Final remarks and recommendations**

Suicide is the loneliest act a human being can commit. It is not the private, the sergeant, or the officer who commits suicide. It is the human being and not the profession nor the rank who takes his own life. Therefore, the soldier included in this study is regarded as a human being more than 18 years of age who has trained for and been deployed on international missions. Hypotheses and questions included in both the quantitative and qualitative studies have been based on this view of human nature, and the results are loyal to the data, answers, considerations, stories, explanations and experiences the participants have shared with us.

## **Literature**

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