

# Health among Navy personnel

A cross-sectional study in the Royal Norwegian Navy



“Nordstjernen” Painting by Mark Postlethwaite GAvA

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## **Scientific environment**

This study was carried out at the Department of Public Health and Primary Health Care, Research Group for Occupational and Environmental Medicine, University of Bergen during the period 2002-2008. The research group also has employees from Unifob AS in Bergen, and together with the University employees a fully integrated research environment is in function. Nils Magerøy is an employee in Unifob AS and a PhD student at the University of Bergen. In the research group a Health, Safety and Environment Navy Group consisted of Kristin Bondevik, Inger Haukenes, Lena Bartz, Ole Jacob Møllerløyken, Valborg Baste, Kristian Gould, Trond Riise, Bente Moen (head of the research group) and Nils Magerøy.

For the different parts of this thesis there was scientific collaboration with Researcher Tone Morken at the National Centre for Emergency Primary Health Care, Unifob Health, Professor Bjørn Helge Johnsen at the Department of Psychosocial Science at the University of Bergen and Navy Psychologist of the Royal Norwegian Navy, and Bjørn Lau, Head of the Department of Organisational and Psychosocial Factors at Work at the National Institute of Occupational Health in Oslo. These scientists, as well as the first supervisor, Professor Bente Moen, and second supervisor, Professor Trond Riise, have been co-authors with Nils Magerøy. Trond is presently a member of the Epidemiology, Lifestyle and Chronic Disease Research Group at the Department of Public Health and Primary Health Care.

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The Reference group of the HSE Navy was important in the development of the questionnaire used for this thesis. The group gave valuable insight into how the Navy operates and into the understanding of the Navy work environment, as well as valuable inputs from other environments. The Reference group consisted from the Navy of Staff Chaplain Terje Løvstad, Public Relations Officer Gunnar Vetlejord and his successor, Katrine Gramshaug, Representative for military employees Thor Manum (special thanks for all his efforts to help) and Representative for civilian employees Tom Liseth; from other institutions Researcher Åge Andersen and his successor Tom K. Grimsrud at the Cancer Registry of Norway, the Deputy Director General of Health Supervision, Norwegian Board of Health Supervision Geir Sverre Braut, Head of Department, Institute of Aviation Medicine, Antony Wagstaff and the professors Bjørn Helge Johnsen, Trond Riise and Bente Moen at the University of Bergen.

The Norwegian Medical Birth Registry with Bjørn Espen Espedal scanned the data from the questionnaires. In securing data quality, Ole Jacob Møllerløyken, Lena Bartz and Valborg Baste from my research group were instrumental. To ensure the best possible English I have had useful advice from David Breuer, Arne Bakken, Kristian Gould and Østeraas Text.

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Bergen, 25 October, 2008

Nils Magerøy

## List of abbreviations and some names of interest

ANOVA	= analysis of variance; used to test whether the mean of a continuous variable is different between groups
BMI	= body mass index = (body weight in kg/[height in m] <sup>2</sup> )
CI	= confidence interval; in a distribution of values it describes a range of values where we are confident that the true value is included
HRQoL	= health-related quality of life
HSE Navy	= the project “Health, Safety and Environment in the Navy”
MSD	= musculoskeletal disorders
N	= number of persons
NS	= non significant
OR	= odds ratio; is the odds of for instance becoming sick in one population group divided by the odds of becoming sick in another population group
P	= p value; is the probability that one could have obtained the observed data if the null hypothesis was true
Pearson $\chi^2$	= Pearson chi-square test; is used to test the differences in categorical values between groups
PTSD	= posttraumatic stress disorder
QPSNordic	= the General Nordic Questionnaire for Psychological and Social Factors at Work
RNoN	= Royal Norwegian Navy
SD	= standard deviation; characterizes the spread of data around the data mean, 95 % of the observations will lie within +/- 1.96 SD when there is a normal distribution of the data
SF-36	= SF-36 Health Survey; an instrument measuring HRQoL
SPSS	= Statistical Package for the Social Sciences; statistical software system
T-test	= in this thesis used to test whether the mean of a continuous variable is different in two groups
$\beta$	= beta; describes the relationship between two continuous variables in such a way that one may predict the value of one variable of an individual if one knows the value of the other variable
r	= correlation coefficient; describes the association between two continuous variables, takes any value from - 1 to + 1



## **Abstract**

This thesis is based on a study on health and work environment among the Royal Norwegian Navy personnel.

## **Background**

The health among navy personnel is of concern both for the sake of the personnel themselves and from the perspective that healthy navy personnel are necessary for a well functioning navy defending our country. As there had been general concerns about risk factors for the Navy employees' health, the Chief of the Naval Staff decided in January 2001 to establish the project Health, Safety and Environment in the Navy. The goal of the project was to give a basis for further action regarding the Health, Safety and Environment work within the Navy. As one part of this project, a questionnaire survey of the general work environment and the health of the employees was carried out by the University of Bergen. This thesis is built upon data from the survey and includes four studies.

## **Aims of the studies**

*The aim of study I* was to compare the health status among naval officers with that of the general population of Norway. The study also investigated the association between health-related quality of life and military officers' rank.

*The aims of study II* were to determine the prevalence of self-reported musculoskeletal disorders (MSD) among military personnel and civilians in the Navy; and to assess the association between physical activity at work and at leisure and MSD.

*The aim of study III* was to study the relationship between experiencing and coping with life-threatening events and self-perceived health.

*The aim of study IV* was to study whether psychosocial factors at work were associated with bullying when observed by individuals, or observed by groups of individuals in different departments, or both. The aim was also to see whether these associations changed when data from the bullied were excluded.

## **Material and methods**

The data were collected in a cross-sectional study by using a questionnaire. In all, 3878 Navy employees were eligible for the study.

In study I, we studied 1316 male military officers from 25 to 62 years of age. We studied their health status by using the SF-36 Health Survey (SF-36) scores standardized for sex and years of age. The data from our study population were compared with data acquired from the Norwegian Social Science Data Service of the general Norwegian population. In the comparison, adjustments for being at work and educational level were made. To study the association between military rank and health status the mean raw scores for the eight SF-36 subscales were used.

In study II, data from questions about MSD, physical activity and background demographics from the 2265 military and civilian workers 18 to 70 years old were used. The prevalence of MSD in nine body parts was compared between the military and civilian workers.

In study III, the 2265 military and navy employees with different types of work on ships and ashore participated. We studied the relationship between the number of life-threatening events, occupational status, sex, age, and the extent of putting these events behind. The SF-36 was used as a measure of self-perceived health. The possible trends between the degree of putting the life-threatening events behind oneself and each of the eight SF-36 scales were calculated.

In study IV, 1657 military personnel were studied both as individuals and as groups at 97 departments. Self-experienced and observed bullying as well as scores for psychosocial scales using the General Nordic Questionnaire for Psychological and Social Factors at Work; QPSNordic were calculated both for the individuals and as a mean for each Navy department. The associations between the psychosocial scales and the occurrence of bullying at the individual and department level were studied. The analyses were repeated excluding those being bullied.

## Results

In study I, we found that the naval officers in the Navy have a similar health status to the working population in Norway with similar educational level. Military rank was not independently associated with the health status among the naval officers.

In study II, we found that the civilian personnel had a higher prevalence of MSD than military personnel in nine body parts, but only in the neck and lower back when adjusted for years of age, sex, physical activity, body mass index, smoking, education and physical stressors. Higher physical activity was associated with less reported MSD for six body parts; the neck, shoulders, hands, upper back, lower back and hips.

In study III, we found that the military personnel seemed more likely to have put the life-threatening events behind than the civilians. The extent of putting the events behind oneself was clearly correlated to self-perceived health as measured by the SF-36 scales *bodily pain*, *general health*, *vitality*, *social functioning*, *role-emotional* and *mental health*, and these associations had linear appearances. The personnel who had “not at all” put the events behind had clearly lower outcomes on these scales compared to those who had not experienced life-threatening events.

In study IV, we found that the psychosocial work environment as measured by the group and organizational QPSNordic scales *fair leadership*, *innovative climate* and *inequality* were associated with high occurrence of bullying at the individual and at the department level; meaning that unequal treatment and lack of fair leadership and innovative climate were associated with high occurrence of bullying. Repeating the analyses excluding those being bullied changed the estimates minimally.

## Conclusion

The population of male military officers had a similar health-related quality of life as the Norwegian population with the same educational level. In addition, this personnel group had a lower prevalence of MSD compared to the civilian personnel. However, this does not preclude that groups of military personnel have health problems. We found that those who had not been able to put the life-threatening events behind had an

associated poorer self-perceived health as measured by the SF-36 compared to those that had no such events. In addition, we found a group of military personnel that were bullied, which affects health negatively, and others that observed bullying, which may have negative effects on health. For the occurrence of bullying the work environment seemed to play an important role.

More physical activity was associated with lower prevalence of MSD for both military and civilian personnel. Although the civilian personnel had put the life-threatening events behind to a smaller extent than the military, those who had put the events behind had better self-perceived health than those who had not put them behind.

## List of publications

The thesis is based on the following papers referred to in the text by their Roman numerals:

- I. Mageroy N, Riise T, Johnsen BH, Moen BE. Health-Related Quality of Life in the Royal Norwegian Navy: Does Officer Rank Matter? *Military Medicine* 2007;172:835-42.
- II. Morken T, Mageroy N, Moen BE. Physical activity is associated with a low prevalence of musculoskeletal disorders in the Royal Norwegian Navy: a cross sectional study. *BMC Musculoskeletal Disorders* 2007;8:56. Published online 2007 July 2. DOI: 10.1186/1471-2474-8-56.
- III. Mageroy N, Riise T, Johnsen BH, Moen BE. Coping with life-threatening events was associated with better self-perceived health in a naval cross-sectional study. *Journal of Psychosomatic Research*. Published online 2008 August 19. DOI: 10.1016/j.jpsychores.2008.03.017.
- IV. Mageroy N, Lau B, Riise T, Moen BE. Association of psychosocial factors and bullying at individual and department levels among naval military personnel. *Journal of Psychosomatic Research*. Article accepted.

# **1 Introduction**

The health among navy personnel is of concern both for the sake of the personnel themselves and from the perspective that healthy navy personnel are necessary for a well functioning navy defending our country. Being an employee of a navy includes hazards to ones health from the potential inflictions of warfare, but also during operation at peacetime, as certain exercises at sea or along the shore may be hazardous. This thesis enlightens some of the aspects of the navy work environment and health.

## **1.1 The Navy**

### **1.1.1 The Royal Norwegian Navy of today in a historical perspective**

Norway has a long tradition as a seafaring nation, and the Navy has been an important part of our national defence.(1) The need for a naval defence is still present as eighty percent of goods entering and leaving Norway does so by sea and the oceanic surface under control of Norway is seven times as large as the land surface. International collaboration also calls for a Norwegian participation in conflicts around the world.

The Norwegian navy history dates back to the Viking period with attacks by Vikings from the late 700s A.D. In the 900s a popular defence was organized by King Håkon the Good with an army on board the Viking ships. This naval fleet controlled larger parts of the North Sea and the North Atlantic islands and parts of Scotland in the mid 1200s. In the period 1380 – 1814 Norway was in union with Denmark and many Norwegians manned the joint Danish-Norwegian fleet, but with no separate Norwegian navy.

In 1814 the Norwegian constitution (Grunnloven) was declared. Norway shared a common king with Sweden, but the countries had separate parliaments. Shortly thereafter a separate Norwegian navy was established. In 1814 there were only 39 naval officers in Norway and the Naval academy (Søcadetinstitutet) was established in 1817.(1) The Naval medical service (Marinens Sanitet) was re-established in 1826, as

naval doctors had been an integral part of the Navy since 1493.(2) The new built fleet participated in international operations and one ship, the corvette North Star (Nordstjernen) was present at the opening of the Suez Canal in 1869.(1)

The size of the Norwegian navy including coastal artillery was increased in the years before the separation from Sweden in 1905. The fleet and artillery were important for Norway to remain neutral during the First World War. During “Weserübung” the German attack on Norway in April 1940, the Norwegian navy was for a large part demolished, but some 13 vessels and 400 men had been able to escape to Great Britain and functioned as a start-up for rebuilding the Norwegian navy. An important event during “Weserübung” was the sinking of the German cruiser Blücher by the Oscarsborg coastal artillery in the Oslo Fjord. The incident delayed the German advance and made it possible for the Norwegian King and the Royal family, and for the government and parliament members to escape from the Germans.

After the Second World War Norway joined NATO in 1949 and the Navy was directed towards a coastal defence. In the 1960`s the main naval base Haakonsværn was established in Bergen and a new Norwegian naval academy (Sjøkrigsskolen) was established in this city. By joining the NATO North Atlantic Fleet Standing Naval Force Atlantic (STAVNAFORLANT) in 1968, the Navy participated in international manoeuvres, surveillance of the USSR naval manoeuvres and coastal defence of Norway. The coastal artillery with fixed installations was directed towards a defence against a potential USSR invasion. Under the United Nations Convention on the Law of the Sea, Norway took on responsibilities for surveillance of vast ocean areas. To survey these areas the Coast Guard was established in 1977 and built up as part of the Navy.

With the end of the Cold War around 1990 the Norwegian armed forces were reduced. This included a 30 % personnel reduction in the Navy in the early 1990`s. The Navy was directed towards more international operations under NATO command in addition to its previous tasks under the UN. Most of the fixed installations of the coastal artillery were closed in this decade, but mobile coastal artillery transported by fast

patrol boats (combat boats) was established at the same time.(1;3) In December 2003 the Navy logistics organization (FLO/Sjø) was closed down,(4) but logistic ships are still a part of the Navy.(5) The Coast Guard has been excepted from the downsizing.

The Royal Norwegian Navy (RNoN) is now organized under the lead of the Chief of the Naval Staff with the Coast Guard, the Coastal Squadron and the RNoN schools each under their own leader.(6;7) There are 18 ships in the Coast Guard.(5) In the Coastal Squadron there are three frigates, six submarines, seven fast patrol boats, six minesweepers, five logistic ships and a tactical combat boat squadron. The tactical boat squadron serves specialized troops. To educate personnel for the Navy there are four schools with school ships.

At the time (2002/2003) when this thesis was planned, the Navy was in large organized as described in the previous section. However, the frigates at that time were of the older Oslo class and the logistics land based organization FLO/Sjø was still a large unit within the Navy in 2002. The present frigates of the Fridtjof Nansen class are more modern and larger and will include five ships in 2010.(5) There has also been a general change towards a more mobile and less land based navy since 2002.

At present the Navy is still in a reorganizing phase with major changes coming.(8) Several new plans are made and the aim is to become the most modern European naval fleet by 2010, operating both nationally and internationally as a "Norwegian Littoral Task Group".

### **1.1.2 Employees**

In the RNoN there are both military and civilian employees.(9) Including conscripts there are at present 3700 personnel in the Navy.(10) Since 1976 women have been accepted for officers' education, and in 1995 a Norwegian woman was the world's first commanding officer of a submarine.(9) There is a policy for increasing the percentage of women military personnel to 15 % in 2008. However, at the beginning of this millennium there were few female naval officers.



In Norway the king is the admiral of the Navy. The naval military officers are ranked from the level of petty officer to admiral and have gone through the compulsory military service and a military education.(11) Some personnel, like medical doctors under compulsory service and military personnel in the officer candidate school may have a military officer rank, but without tenure. Another group of military personnel are enlisted. They are employed on a provisional basis.

The military personnel are regularly assigned to service whereas civilians do not have this type of ordering. Generally the military personnel serve both at sea and ashore whereas civilians work on land and not in combat units. Among the civilians there were many skilled workers in workshops within FLO/Sjø, still a part of the Navy when the present study was done.

### **1.1.3 Work environment**

The RNoN has in general operated under peaceful circumstances since 1945. However, there have been armed missions under the UN and NATO.(1) This study was carried out before the experiences of war in Afghanistan, where Norwegian Navy personnel also participate.

Both the psychosocial and the physical/chemical aspects of the work environment are of importance for the Navy personnel. The health, safety and environmental work in the armed forces explicitly includes focus on the psychosocial aspects of work.(11) The curriculum of the Naval academy regarding military leadership clearly focuses on psychosocial aspects such as stress and coping for military personnel.(12) Specific directive rules on how to handle bullying have recently been issued.(13)

Work in the Navy differs from other types of employment in many respects. Personnel in naval occupations experience exposures such as noise, heat, radiation, gases, smoke, and fumes from fires, guns, and other weapons.(14-16) Furthermore, the work is often performed on rapidly moving vessels, night and day, under high work pressure.(17) To be prepared for such working conditions the Navy constantly practices in scenarios

close to real life situations.(18;19) These working conditions have the potential to negatively affect the health of personnel.(20)

#### **1.1.4 Health of the Navy personnel**

The Constitution of the WHO defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”(21) This broad perspective on health is a challenge when promoting good health for populations. Health is also seen as important for peace in the WHO declaration: “The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and States.” Being part of the State, it does seem logical that the Navy takes on responsibility for the health of their employees, both from the perspective of welfare for their employees and for the sake of a well functioning Navy.

When entering the Navy as a military person healthy personnel are selected by various tests including physical fitness.(22) The military officers are also required to have a certain level of education which is associated with good health.(23) There is therefore a “healthy worker selection” into the Navy among the military personnel.

To ensure that the employees are in good health the Navy has established several measures. Sports officers are required to suggest plans for physical exercise for the crews and to oversee sports events in spare time.(18) All military personnel must pass an annual physical fitness test, but this is not required for the civilians.(24) However, all Navy personnel, including civilians, are allowed to engage in physical exercise two hours per week during workday hours and are also encouraged to exercise outside work hours.

An Inspector of Naval Medicine was re-established at the naval base Haakonsværn in 1994.(25) Since 2003, this service has been integrated as a part of the Coastal Squadron to secure the health, environment and safety of personnel under the Chief of the Naval Staff. Some of the maritime units have MDs, nurses and medical assistants on board. There are sick bays located ashore at the naval bases Haakonsværn, Ramsund

in the municipality of Tjeldsund and at KNM Harald Hårfagre in Stavanger. The naval bases are staffed with MDs, psychologists and dentists. The Naval medical service also organizes an interdisciplinary support unit in case of crises situations, serious accidents and deaths of personnel and partakes in the teaching of naval students.

The Naval medical service delivers health services such as regular medical tests as a part of the Defence medical service program. The office of submarine and diving medicine is located at Haakonsværn and is a part of the Defence medical service.

There is also an alarm centre located at Haakonsværn for calls regarding health, safety and environment in the Navy. It includes doctors on 24 hours call and seven days duty for ordinary medical emergencies and for diving medicine emergencies, as well as pastoral service and family support service.

Admiral Lord Nelson reported on his own ailments of malaria, scurvy, tropical sprue, heart and lung problems and depression.(26) Later, there have been several articles published on morbidity and mortality in the Navy and these aspects have also been described in the thesis “Schiff und Seuche 1795-1799”.(27) Statistics on death and diseases have been reported,(28) and there has been a change from infectious diseases towards neuropsychiatric illness as a major cause for lost work days and discharge from the Navy, and from infectious diseases to cardiovascular diseases and cancer, as well as accidents, as most common causes of death. Among US Navy officers the six highest ranked medical conditions (ICD9 categories) that precluded full duty assignments in the years 1998 – 2000 were musculoskeletal system (26.8 %), mental disorders (15.2 %), nervous system (9.2 %), injury and poisoning (6.7 %), neoplasm (6.6 %) and circulatory system (6.3 %).(29)

## 2 Research topics

For several years there had been general concerns about risk factors for the Navy employees' health such as asbestos on navy vessels and exposure to depleted uranium in the Balkans, and the health of children of parents serving on a special electronic warfare ship and in the radio workshop, and suspicion of increased incidence of myocardial disease among submarine personnel and of cancer among fortress personnel.(30) There were also ship accidents in the Navy and other accidents that might have been perceived as life-threatening for the employees.(31) As a response to these concerns the Chief of the Naval Staff decided to establish the project "Health, Safety and Environment in the Navy" (HSE Navy) in January of 2001. The goal of the project was to give a basis for further action regarding the health, safety and environment work within the Navy. In this project a survey of the general work environment and the health of the employees were to be done by independent institutions; the Norwegian Cancer Registry(32) and the University of Bergen. As one part of the University project, a questionnaire was sent to all employees regarding various aspects of their work environment and health.

This thesis was an integral part of the questionnaire survey and aimed at four main research topics. The first study topic was the health of the Navy population compared with the Norwegian working population (Paper I). We also wanted to study if military rank was associated with health since it might be seen as a proxy for social class known to be associated with health. Based on the findings in Paper I that physical activity seemed to be the most important positive lifestyle factor for the health of the military population and since physical activity is a vital part of work in the Navy, a further study on physical activity was decided. We studied the association between physical activity and musculoskeletal disorders (MSD), a common health problem among workers that may be affected by physical activity (Paper II). We had not included civilian personnel in the first study and wanted to see whether there were differences between military and civilian personnel regarding MSD.

The work tasks for naval personnel include being exposed to potentially dangerous situations which may be perceived as life-threatening. The health implication of coping with such events was our third research topic (Paper III). Finally, in a hierarchical organization like the Navy it might be suspected that bullying is common. Since it is known that bullying has detrimental effects on health, it was of interest for our research to detect the occurrence of bullying and which factors might be associated with the occurrence (Paper IV).

## 2.1 Population health

Population health may be seen as a conceptual framework for reasoning about why some populations are healthier than others.(33) A model for such a framework has been developed and includes a broad range of indicators to report on regarding population health, Figure 1.(34) A strength of this model is that it includes the concept of time (life-course processes).(35)

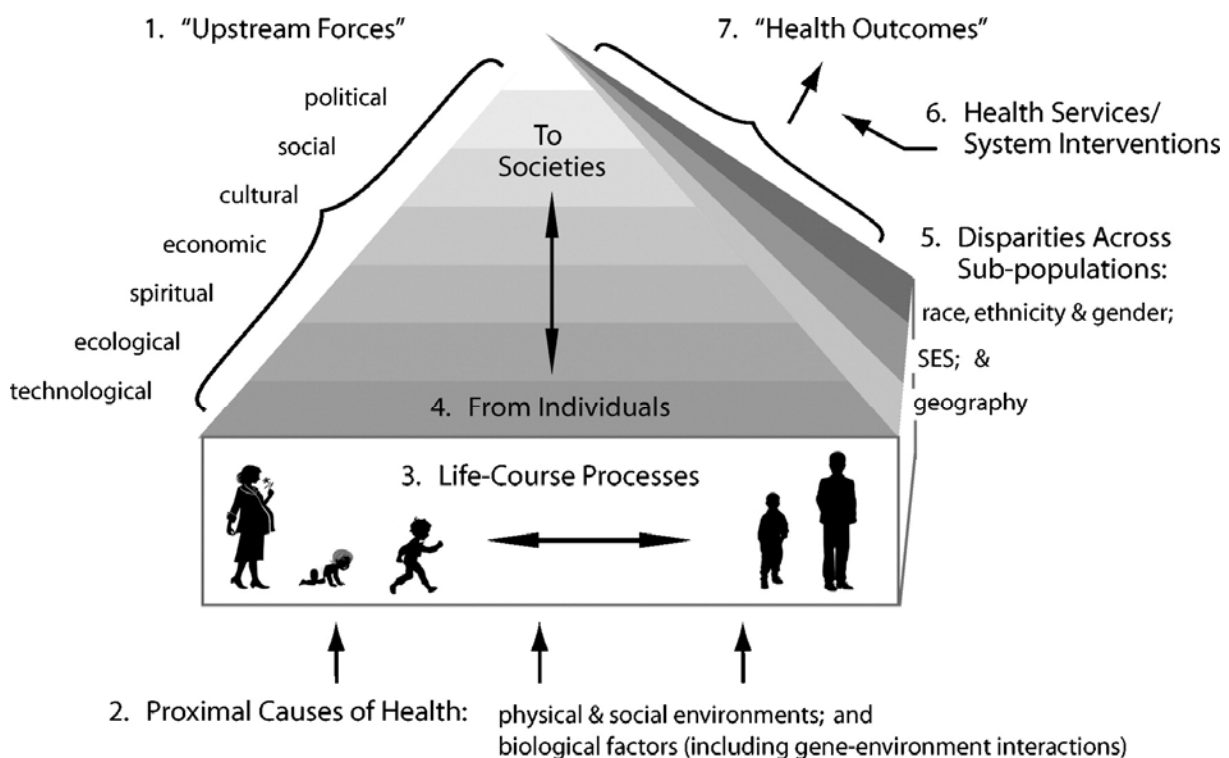


Figure 1 A model for a conceptual framework of population health (SES is socioeconomic status, health outcomes refers to individual health outcomes) (34)

In this thesis we studied fragments of the conceptual model for population health. In Paper I to III we studied topics classified under point 7, Health Outcomes; we studied the health and occurrence of MSD in our study population. In Paper IV, we studied what may be labelled under point 2, Proximal Causes of Health; bullying.

The health of a population may also be defined as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.”(36) Several indicators have been used to measure the population health such as mortality reports, mortality rates and life expectancies, prevalence of diseases, quality of life measures and summary measures of population health.(34) These measures may be seen as specific population health outcome measures.(33)

In our study a quality of life measure was used as a health outcome measure of our population. In general, quality of life may be used in two ways; firstly, for objective markers of living conditions and secondly, as a subjective concept for humans’ well-being or satisfaction with life.(37) Many of the subjective measures of quality of life cover physical, social and emotional dimensions of health, and these measures have been named “general health status measures” or “measures of health-related quality of life”.(38) In this thesis we use a health-related quality of life (HRQoL) measure as a measure of the health of the study population.

## **2.2 Health-related quality of life measures**

HRQoL measures have been developed to assess aspects of an individual’s subjective experience that relate both directly and indirectly to health, disease, disability, and impairment (39) and have also been used to predict mortality rates.(40) Some of these instruments have been developed for populations with specific diseases such as for cancer patients and patients with asthma.(37) Other, generic scales are not linked to specific diseases and have been developed to make comparisons between healthy populations and populations with diseases, as well as for comparisons between populations in different countries. In this thesis we compared the health of our naval population (Paper I) with the Norwegian population at a point or narrow period of time, and the outcomes may be seen as an expression of the health status of our naval

population.(33) In Paper I our findings linked to the HRQoL measure are used as an expression of “the health status” of the naval population.

Frequently represented health concepts have been included in the HRQoL instruments and have been used in a wide range of studies including individual evaluations of current health status, detecting average group differences and change over time, screening for psychiatric disorders, prediction of utilization of health care services, normative data for general and specific populations and in documenting disease burden.(41) In documenting the burden of life-threatening events in Paper III, although using the same HRQoL instrument as in Paper I, we have used the expression “self-perceived health” for the comparison of health between groups.(39)

### **2.3 Physical activity and musculoskeletal disorders**

Physical fitness is important for Navy employees.(24) Exercise is defined as “exertion of the limbs undertaken with a view to the maintenance or improvement of health” (Oxford English Dictionary). Physical activity may be seen as a positive determinant for population health.(34;42) Lifestyle physical activity is an expression used for all leisure, occupational or household activities that are at least moderate to vigorous in intensity and can be planned or unplanned activities that are part of everyday life, and physical exercise is included in this concept.(43)

Musculoskeletal conditions(44) are common and may result in suffering among individuals and have economic effects on society.(45-47) Physical activity is often recommended for preventing several diseases, including musculoskeletal conditions.(48;49) Incontrovertible evidence indicates that regular physical activity contributes to preventing cardiovascular disease in the population,(50;51) as well as diabetes, depression and cancer.(50) This is still an open question regarding musculoskeletal conditions.(52;53) More research is needed to prove the hypothesis that physical activity can prevent, for instance, non-specific low-back pain.(53)

## **2.4 Life-threatening events and coping**

Life-threatening or traumatic events are experienced by most people in the course of their lifetime and may be related to robbery, physical or sexual assault, traffic accidents, natural catastrophes, sudden and unexpected deaths of close relatives or friends, and war and combat.(54-57) Such events may happen in adult life or childhood and can be self-experienced or witnessed.(55;58) These events may contribute or lead to the development of posttraumatic stress disorder (PTSD), as well as depression and anxiety disorders.(57;59) Traumatic events have also been linked to physical health problems including musculoskeletal,(60) cardiovascular, and respiratory symptoms.(55;61) Although it has been suggested that negative health effects following life-threatening events do not develop in the absence of PTSD,(57) there is also evidence for negative health effects of trauma mediated through other distress reactions such as depression.(62)

Several processes for coping with life events and stressors are described in the research literature by Antonovsky,(63) Ursin(64) and Lazarus. In Lazarus' theory of the appraisal process, Lazarus posits two appraisal processes.(65) In primary appraisal, the person assesses the relevance of a situation or event. In secondary appraisal, the person assesses his or her options and resources for dealing with a motive-relevant event (e.g., a threat). The outcome of secondary appraisal is the person's belief that he or she can cope with the event or that he or she cannot cope with it.

## **2.5 Psychosocial factors at work and workplace bullying**

Psychosocial factors at work are factors that have an impact within social arenas and that are influenced by individual psychological processes with consequences for job satisfaction, health and performance.(66) In Karasek and Theorell's research of the psychosocial work environment, the workers ability to control his or her activities and skill usage (decision latitude) was found to be important to avoid negative consequences for these workers' health when the psychological workload (job demands) was high.(67) They also found that social support was associated with lower



levels of depression among workers with the same level of psychological demands and decision latitude.

Bullying has been recognized as an important occupational stressor both in North America and in Europe,(68;69) and within the WHO.(70) Bullying may cause decrements in job performance and increased absenteeism and turnover among the targets of bullying, and may give rise to legal and financial problems for organizations.(71;72) Bystanders and targets of bullying have reported lower job satisfaction than non-involved workers.(73;74) Empirical studies also appear to support the hypothesis that exposure to bullying poses a serious strain on the victims' health(75;76) and on both victims' and bystanders' health and well-being.(77)

Bullying in occupational settings involves, according to most definitions, that employees are exposed to negative acts from one or more others for a longer period of time (often more than six months), and that the target for these acts have difficulties in defending themselves.(78-80) Another characteristic with bullying is the imbalance in power between the perpetrator and the bullied.(79;81) Leaders might be directly involved in bullying, or the bullying takes place between colleagues where the perpetrator for some reason is in a stronger position than the victim. However, subordinates can also bully leaders, especially if they act as a group (79;82).

Stressful and poorly organized work environments may give rise to conditions resulting in bullying.(83-85) Previous studies have shown that several operating psychosocial factors are associated with more bullying; these include low satisfaction with leadership, low work control,(84) high role conflict,(74;84) bad job content and social environment,(86) changes in work organizations (e.g. downsizing),(87) and negative social climate,(88) whereas social support(86;89-90) and the presence of group harmony have been associated with less bullying.(90)

### **3 Aims of the study**

*The aim of study I* was to compare the health status among naval officers with that of the general population of Norway. The study also investigated the association between HRQoL and military officers' rank, adjusted for lifestyle, demographic, and educational variables.

*The hypotheses of study I:*

The military officers of the Navy have a better health status compared with the Norwegian population. The rank of military officers is associated with the health status of the officers.

*The aims of study II* were to determine the prevalence of self-reported MSD among military personnel and civilians in the Navy, and to assess the association between physical activity at work and at leisure and MSD.

*The hypotheses of study II:*

The Navy military personnel have a lower occurrence of MSD compared with the Navy civilian personnel. A higher level of physical activity at work and at leisure is associated with a lower occurrence of MSD among naval personnel.

*The aim of study III* was to study the relationship between experiencing and coping with life-threatening events and self-perceived health in a naval population operating mainly under peaceful circumstances.

*The hypothesis of study III:*

The Navy personnel who have experienced life-threatening events which they have not been able to cope with have lower self-perceived health than personnel who cope with such events.

*The aim of study IV* was to study whether psychosocial factors at work were associated with bullying when observed by individuals, or observed by groups of individuals in

different departments, or both. The aim was also to see whether these associations changed when data from the bullied were excluded.

*The hypothesis of study IV:*

Psychosocial factors related to group and social interaction at work among military naval personnel are associated with bullying both at the individual level and at the department level, even when the bullied are excluded from the analysis.

## **4 Materials and methods**

### **4.1 Study design**

The data were collected in a cross-sectional study by using a questionnaire sent by mail to the Navy personnel. The mailing was personally addressed with name and workplace address. In the envelope, there was an information letter from the University of Bergen, a recommendation letter from the Chief of the Naval Staff, a letter of consent to be filled out by the responder and the questionnaire with a return envelope. Two reminders were sent to those who had not responded, and the last reminder included a new copy of the questionnaire.

The name, workplace/address, National Insurance number and for military personnel, military rank were pre-printed on the questionnaire. To secure anonymity for the responders towards the administration in the Navy the questionnaires and letters of consent were returned directly to the research group at the University of Bergen. A written consent was required for participation in the study (Appendix). On the consent form the responders were asked if they accepted being contacted for medical reasons if this was warranted by their responses, if they gave permission for data from the questionnaire to be linked with data from the Cancer Registry and if the information given could be transferred to a database established for the Norwegian armed forces.

### **4.2 Study population**

The study population consisted of those who were employed by the Navy as of September 23, 2002, but conscripts were not included. The list of employees we received from FLO/IKT (the Register office) is shown in Table 1.

**Table 1 Original list of Navy personnel**

	2056	Officers in the Navy
	622	Navy officers serving in joint military units
	189	Enlisted in the Navy
	1221	Civilian personnel in the Navy
Total	4088	Navy personnel

After sending out 4088 questionnaires, two groups of personnel were excluded; one group as a security precaution and one group of military students (officer candidate school), Table 2. There were 186 persons that had either left the Navy or had mail with the questionnaire returned to the University from the Navy workplace marked as “Unknown”. Added to the list were 61 persons not on the original list, but still employed by the Navy in September 2002. All together, there were 3878 Navy personnel eligible for the study.

**Table 2 Navy personnel eligible for the study**

	4088	Navy personnel
	-85	Excluded
	-186	Had left/unknown
	61	Were added
Total	3878	Navy personnel – final number

The overall response fraction was 58 % (2265 of 3878). Of those who responded 71 % (1631) had done so by the time the first reminder was sent. Although there was information about the responder pre-printed on the questionnaire, some had filled out copies of questionnaires leaving out some of this information or had erased this kind of information from the original questionnaire. Information on age or sex was missing for

19 persons. There were 8 persons who responded twice. Their last response was neglected.

There were a total of 2001 (89 %) men and 250 (11 %) women who participated in the study. Of these, 1657 (74 %) were military personnel and 593 (26 %) civilians. The responders were 38.3 years of age (mean), the military personnel were 35.2 and the civilians 46.9 years of age.

For the total population there was a higher response fraction among men (58.8 %) than among women (52.4 %); relative risk = 1.1 (95 % confidence interval [CI] 1.03 – 1.23, Pearson chi-square test). The responders were 1.5 years older (95 % CI 0.75 – 2.32, independent sample T-test) than the non-responders. Among the military personnel there was no difference in sex distribution among responders compared to non-responders. The responders in this group were 4.4 years older (95 % CI 3.66 – 5.17, T-test) than the non-responders.

#### **4.2.1 Samples used in the four studies**

For Paper I we only studied male military officers aged 25 and older, and within this population we had a response fraction of 68 % (1316 of 1935). These officers were chosen because they had some length of service. Women were excluded because there were too few female officers. The included officers' mean age was 38 years and they had a maximal age of 62 years. For comparing health status a comparison population in the 2002 Norwegian Level of Living survey was chosen. In this survey there were 6,193 responders (64 % response fraction); 73.4 % of the respondents had an age of 25 to 66 years, and 48.5 % were men.

For Paper II and III we studied all military and civilian employees in the Navy, as we wanted to compare these groups. In Paper IV we studied all military personnel in the Navy as they worked in more departments than the civilian personnel. We had a response fraction of 62 % among the participants (1657 of 2652) selected for this study.

## **4.3 Instruments and variables**

### **4.3.1 The questionnaire**

We have used a questionnaire with self-reported data as the main method for collecting information in this study. Self-report is defined as any procedure for collecting data that involves a direct report of information by the person who is being studied.(91) In our study, both the independent variables (risk factors) and dependent variables (outcome measures) were based on self-reports. These reports were used both for self-evaluation and for evaluation of other persons and organizational measures as well as for various exposures.

The questionnaire was large, as several subprojects had questions. Not all questions were used in the studies for this thesis. The participants were asked about work history and different exposures at work, using questions constructed for this study. There were also questions about familiar diseases, previous and present diseases, and whether they had children and if so, more information about the children's years of birth and about congenital anomalies. The standardized instruments SF-36 Health Survey (SF-36),(92) and General Nordic Questionnaire for Psychological and Social Factors at Work; QPSNordic were included,(93) as well as a modified version of the standardized Nordic questionnaire about MSD.(94) Questions about smoking, alcohol consumption, physical activity, weight and height were asked as well. The variables used in this thesis are listed in Table 3 and 5.

### **4.3.2 Supplementary information**

We had information from the Navy files on the employees' years of age, sex and workplace, and for the military personnel, military rank. In the questionnaire the respondents could update the information on workplace and military rank.

### 4.3.3 Variables

An overview of the independent variables is given in Table 3 and dependent variables in Table 5.

**Table 3 Independent variables (risk factors) included in Papers I-IV**

	Paper I	Paper II	Paper III	Paper IV
Years of age (continuous)	x	x	x	x
Years of age (categorical)	x			x
Sex		x	x	x
Occupational status (military/civilian)		x	x	
Military rank	x			x
Marital status	x			
Education	x	x		x
Alcohol consumption	x			
Smoking	x	x		
Body mass index (height and weight)	x	x		
Physical activity	x	x		
Physical stressors index		x		
Life-threatening events			x	
The degree of putting life-threatening events behind			x	
Leadership responsibility				x
Navy departments				x
Navy main organizational categories				x
QPSNordic scales for group and organizational working environment factors				x



The variables years of age, sex and occupational status: The respondents' years of age was calculated as of January 1, 2003. Age groups were categorized as 25 to 34 years of age, 35 to 44, 45 to 54 and  $\geq 55$  in Paper I, but in Paper IV those  $<25$  years of age were added as a group and those  $>44$  were collapsed into one group. In Paper II-IV both men and women were included and sex used as a variable. Occupational status was used as a variable in Paper II and III as both civilians and military personnel were included.

Military ranks: The number of personnel and their ranks are shown in Table 4. In Paper IV there were five categories of ranks; enlisted were included in one category with petty officer and ensign; separate categories were lieutenant junior grade, lieutenant commander and commander; commander senior grade and captain navy were included in the highest ranked officers' category.

**Table 4 Military personnel in Paper I and IV split by ranks**

Military rank	Paper I Male officers $\geq 25$ years of age (%)	Paper IV All military personnel (%)
Enlisted	0	77 (4.6)
Petty officer	13 (1.0)	68 (4.1)
Ensign	109 (8.3)	235 (14.2)
Lieutenant junior grade	297 (22.6)	346 (20.9)
Lieutenant commander	369 (28.0)	393 (23.7)
Commander	333 (25.3)	339 (20.5)
Commander senior grade	144 (10.9)	147 (8.9)
Captain Navy	36 (2.7)	36 (2.2)
Commodore admiral, rear admiral and vice admiral	15 (1.1)	15 (0.9)
Total	1316 (100)	1657 (100)

Marital status and education: Marital status was categorized as married, cohabiting, or single. Education was categorized as 12 to 14 years of education, 14 to 16 years, or  $\geq 16$  years. Naval college years were included in the years of education, even when taken as supplementary education. Two individuals with  $<12$  years were included in the 12- to 14-year group in Paper I and 8 in Paper IV, but in Paper II the category of 9- to 12-year group was a separate category.

Alcohol, smoking and body mass index (BMI): Alcohol consumption was measured as the units (12.8 g) consumed in the past week, i.e.,  $<1$  unit, 1 to  $<3$  units, 3 to  $<13$  units, 13 to  $<21$  units, or  $\geq 21$  units.(95) Smoking was categorized into current smoker, previous smoker and never smoker in Paper I and into present smoker versus non-smoker in Paper II. BMI was calculated from height and weight (body weight in kg/[height in m]<sup>2</sup>) and categorized as defined by the World Health Organization, as  $<25$  (only six subjects had values of  $<20$ ), 25 to  $<27$ , 27 to  $<30$ , or  $\geq 30$ .(96)

Physical activity: Information on physical activity was obtained from both work time and leisure time and based on a questionnaire used in several Norwegian surveys.(97) The amount of physical activity at work was measured with the following question: "How much physical activity have you had during work in the past year (average per week)?" Two scales were provided, [1] heavy activity with sweating and heavy breathing and [2] light activity without sweating and heavy breathing. The respondent was asked to tick off one of the following options for each scale: "none", "less than 1 hour", "1 to 2 hours" and "3 hours and more". The same question was repeated for leisure time. For physical activity, a scale ranging from 0 to 18 was created. Heavy activity with sweating and heavy breathing counted twice as much as light activity without sweating and heavy breathing. In Paper I this scale was categorized into: 0 to 1, very low activity; 2 to 4, low activity; 5 to 12, moderate activity; 13 to 16, high activity; 17 to 18, very high activity, and in Paper II: 0 to 4, low activity; 5 to 12, moderate activity and 13 to 18, high activity. In both papers the variable was used both categorically and linearly.

Physical stressors index: Physical work demands were determined by asking: "Have you in your work in the Navy now or previously been exposed to: a) heavy lifting; b) twisted positions; or c) working with arms above shoulder height?". The same questions were repeated for work and leisure outside the Navy. A five-point scale ranging from "never" to "very much" (0 to 4) was used for each question. The 6 physical work demands questions were transformed into a physical stressors index ranging from 0 to 24. The physical stressors index was characterised as very low for scores 0 to 4, low for 5 to 8, high for 9 to 12 and as very high for scores 13 to 24.

Life-threatening events and the degree of putting life-threatening events behind: The employees were asked the question "During your work in the Navy, have you been exposed to events you perceived as life-threatening?" and if they answered yes, they had to indicate the number of times they had been exposed to such events.(98) Those who reported such events were asked if they had put these events behind them "completely," "partly," "slightly," or "not at all," or "had not formed an opinion concerning this matter." The questions were repeated under a section in the questionnaire on various exposures outside the Navy, rephrasing them with the term "outside the Navy." There was no specific question about the type of trauma or when it was experienced and no question about childhood trauma.

Leadership responsibility: The personnel were asked if they had leadership responsibility (yes/no).

Navy departments and Navy main organizational categories: In general, the Navy personnel worked on separate locations like ships, workshops and schools; named departments in this thesis. In Paper IV the departments were grouped into four main organizational categories; the Operational category (ships including coast guard, submarines, battle force units), Logistics (workshops), Schools and Defence command (headquarters) and other offices.

To measure the psychosocial work environment we used scales from QPSNordic (which contains 80 items and 26 scales) that focus on the group and organizational working environment factors.(93) Three of these scales measure social support

(support from superior, support from co-workers and support from friends and relatives), two scales measure leadership (*empowering leadership* and *fair leadership*), and four scales measure climate and culture (*social climate*, *innovative climate*, *inequality* and *human resource primacy*) and one scale *perception of group work*. The scales consisted of multiple-choice questions, which were rated on five-point scales ranging from [1] “seldom” to [5] “very much” or “always”. Scales were computed as mean scores of the questions included in the scales, with high scores indicating high levels of the construct measured.

**Table 5 Dependent variables (outcome measures) included in Papers I-IV**

	Paper I	Paper II	Paper III	Paper IV
The eight SF-36 subscales for health-related quality of life	x		x	
Musculoskeletal disorders by body parts		x		
Bullying				x

The dependent variables used in Paper I and III were measures of HRQoL using the SF-36 Health Survey.(92) The eight summary scales are constructed by using 35 of the 36 items, with 2 to 10 items in each scale, ordered from the most physical to the most mental HRQoL, i.e., *physical functioning*, role limitations attributable to physical problems (*role-physical*), *bodily pain*, *general health*, *vitality*, *social functioning*, role limitations attributable to emotional problems (*role-emotional*), and *mental health*. The raw subscale scores used in Paper I range from 0 to 100, with higher scores being more positive. Standardized mean scores were used in Paper I for the comparison between the Navy population and the working population of Norway and also in Paper III as an outcome measure assessing the association with coping with life-threatening events.

In Paper II the dependent variable was MSD defined as self-reported musculoskeletal symptoms.(94) The questions about MSD were phrased as follows: "Have you had

complaints (pain or discomfort) during the past 12 months in your \_\_\_?" The list included the neck, shoulders, elbows, hands, upper back, lower back, hips, knees and feet. A five-point response scale "never, seldom, sometimes, often, very often" was used. Each of the MSD scales were dichotomised; into often or very often (scores 4 to 5) and never, seldom or sometimes (scores 1 to 3). On the five-point scale from "never" to "very often", it has been suggested that workers who report MSD "often" or "very often" from one or more parts of the body should be classified as having significantly impaired health.(99)

In paper IV the QPSNordic included one question about witnessing bullying at work: "Have you noticed anyone being subjected to harassment or bullying at your workplace during the last six months?" and one question about bullying: "Have you been subjected to bullying or harassment at the workplace during the last six months?" The response categories were "yes" and "no". The questions were preceded by a definition of bullying: "Bullying (harassment, mental violence, badgering, niggling, offending somebody) is a problem at some workplaces and for some workers. To label something as "bullying" the offensive behaviour has to occur repeatedly over a period of time, and the confronted has to experience difficulties defending himself/herself. The behaviour is not bullying if two parties of approximately equal "strength" are in conflict or the incident is an isolated event."

#### **4.4 Statistical analysis**

The SF-36 scores used in Paper I and III were standardized for sex and years of age, using data of the general Norwegian population acquired from the Norwegian Social Science Data Service. A standardized mean score in the general population was 50 and a difference of 10 corresponded to 1 SD. An individual score below 50 meant that the individual scored lower than the mean score of people with the same years of age and sex in the general population.

Missing data substitution was performed for the SF-36 scales where 50 % or more of the questions had been filled in. In Paper I in the general population, there were 6,864 missing scales (14 %) and missing substitution was made for 918 scales (2 %). For the

Navy population missing substitution was made for 75 scales (0.7 %) and there were 26 missing scales (0.2 %) after the missing substitution. In Paper III including all military personnel and also civilians, missing substitution was made for 166 scales (0.9 %) and after the substitution there were 110 missing SF-36 scales (0.6 %).

Standardized mean scores (adjusted for sex and years of age), with 95 % confidence intervals, for 8 SF-36 subscales were used in Paper I for the comparison between the Navy population and the male working population of Norway 25 to 62 years of age. Two-way analysis of variance (ANOVA) was also performed with the study population (Navy or working population) and level of education used as grouping variables for each of the subscales.

Within the studied population, the following analyses were performed:

One-way ANOVA was used for estimating and testing differences within the mean raw score of the eight SF-36 subscales for the categorical or categorised variables military rank, years of age, education, physical activity scale, marital status, BMI, smoking status and alcohol consumption (Paper I). This analysis was also used for testing the differences in the standardized mean scores of the SF-36 subscales between those with different categories of experiencing life-threatening events, including those with no events (Paper III). The independent sample t-test was used to compare differences between military and civilians in years of age, physical activity, BMI and education (Paper II).

In Paper IV we inversed the scores of the *inequality* scale of the QPSNordic so that a high score in this scale would be favourable similar to the other scales. The *social climate* scale was left out of the analysis as the responses to the different questions within the scale were inconsistent. Information on bullying was used in three different ways. Firstly, three categories of bullying status were established among the military personnel; [1] being bullied, [2] observing bullying but not being bullied and [3] neither being nor observing bullying. Secondly, the bullying status variable was dichotomised into being bullied or observing bullying = 1 and neither being nor

observing bullying = 0. Thirdly, from the dichotomised variable the percentage of observing bullying = 1 was estimated for each Navy department.

To estimate the association between the three categories of bullying status and each of the QPSNordic scales four-way ANOVA analysis was used in Paper IV. We included the variables years of age, sex, and main organizational categories as additional grouping variables. The effect size of the association between bullying status and the QPSNordic scales was estimated with those neither bullied nor observed bullying as the reference group.

Bivariate correlations were calculated between military rank and years of age, between the eight SF-36 subscales and the originally continuous variables years of age and physical activity and for the categorical variables military rank and education that could be linearly associated with the SF-36 scores (Paper I). In Paper III bivariate correlations were calculated to estimate the trends between the degree of putting life-threatening events behind and the eight SF-36 scales. To explore the difference between military and civilian personnel (and for men and women) with respect to the effect of putting the life-threatening events behind them on the HRQoL, analysis of covariance was used. In Paper IV bivariate correlations as well as Cronbach's alpha values for the included QPSNordic scales were estimated.

Multiple linear regression analysis was used to study whether military rank was associated with HRQoL, and variables significantly associated with at least two SF-36 subscales according to the bivariate analyses were entered in the analysis (Paper I). As military rank and years of age were highly correlated we first entered these continuous variables to see whether they differed in their association with the SF-36 subscales. In Paper IV univariate linear regression was used for estimating the associations between the QPSNordic scales, mean age and male percentage and the outcome of the percentage observed bullying at 97 departments in the Navy. In a stepwise multiple linear regression, the QPSNordic scales significantly associated with the percentage observed bullying variable were entered with adjustments for mean age and male

percentage (entered as step 1). We repeated the analyses of these associations excluding the data from those being bullied themselves.

The Pearson Chi-square test was used to compare differences between military and civilians in MSD, physical stressors index and smoking (Paper II). Linear by linear association was tested between three categories of physical activity and number of workers with MSD. In Paper IV the Pearson Chi-square test was used to test the differences between the three groups of bullying status within the categorical variables age groups, sex, military rank, leadership responsibility, years of education and four main organizational categories.

Multiple logistic regression analysis was used to study the relationship between physical activity and the dichotomised MSD for each body region separately. In the analyses age, sex, employment status (military/civilian), BMI, smoking status, education and physical stressors index were included as independent variables (Paper II). In Paper III multiple logistic regression analysis was used to study the relationship between the independent variables occupational status, sex, and years of age (as a continuous measure) and the risk of having experienced life-threatening events, and to study the relationship between the number of life-threatening events, occupational status, sex, age, and the extent of putting these events behind. In Paper IV we first estimated the OR for being bullied or observing bullying (the bullying status variable dichotomised into being bullied or observing bullying = 1, neither of these = 0) in a univariate logistic regression analysis with each of the QPSNordic scales and the organizational units as independent variables in separate analyses. In a backwards stepwise logistic regression, eight QPSNordic scales and the organizational units were entered (after sex and age in step 1). The analyses in Paper IV were repeated without data from those who had been bullied themselves.

In all four studies, SPSS 13.0 (SPSS, Chicago, Illinois) was used for statistical analysis. Two-tailed *p* values of <0.05 were considered statistically significant. In Paper IV the stepping method criteria used 0.05 for entry and 0.010 for removal for the probability of F.



## **4.5 Ethics**

Full freedom of publication from the research programme HSE Navy was granted by the RNoN to the University of Bergen. The Regional Committee for Medical Research Ethics in Western Norway and The Norwegian Data Inspectorate approved the study. Written consent was given by all participants. All data with personal identification will be destroyed by December 2008.

## **5 Summary of results**

### **5.1 Paper I**

The military officers of the Navy had HRQoL similar to that of the general population of Norway when adjusted for years of age, sex, working status, and education. Military rank was not associated with HRQoL after adjustment for other variables. Years of age, education, BMI, never-smoker versus smoker, married versus single and physical activity were all associated with HRQoL.

### **5.2 Paper II**

The Navy civilians had a higher prevalence of MSD than military personnel. An association between being a civilian and having more MSD than the military personnel persisted for the neck and lower back when adjusted for years of age, sex, physical activity, BMI, smoking, education and physical stressors.

A relationship between higher physical activity and less reported MSD in six body parts was demonstrated in the study. The significant associations were found for the neck, shoulders, hands, upper back, lower back and hips when adjusted for employment status, years of age, sex, BMI, smoking, education and physical stressors. Light physical activity strengthened the inverse association between physical activity and MSD.

### **5.3 Paper III**

Military personnel (men and women) and men (military and civilian) had more frequently experienced life-threatening events than civilians and women, but the military personnel were 5.5 times more likely to have put the events behind them than the civilians. The extent of putting life-threatening events behind oneself was clearly correlated to self-perceived health as measured by the SF-36 scales *bodily pain*, *general health*, *vitality*, *social functioning*, *role-emotional* and *mental health*, and these associations had linear appearances. The outcomes for these scales were clearly lower

(0.62 to 1.02 S.D.) for the personnel who had “not at all” put the events behind themselves compared to those who had not experienced life-threatening events. For those who had put the events behind completely, partly and slightly, the outcomes were in between. For the scales *physical functioning* and *role-physical*, the differences in the outcomes were small.

## **5.4 Paper IV**

Among the Navy personnel, the psychosocial work environment as measured by the group and organizational QPSNordic scales was lowest (unfavourable) for those who were bullied, highest for those who neither were bullied nor had observed bullying, and for those observing bullying the estimates were in-between. Low scores on the *fair leadership*, *innovative climate* and *inequality* scales were associated with high occurrence of bullying at the individual level in a backward stepwise multivariate logistic regression; meaning that unequal treatment and lack of fair leadership and innovative climate were associated with high occurrence of bullying. At the department level, the three scales were similarly significantly associated with percentage observed bullying when analyzed separately. A low score on the *fair leadership* scale and lower departmental mean age were associated with high percentage observed bullying in a stepwise multiple linear regression analysis. Repeating the analyses excluding those being bullied did not change the estimates markedly.

## 6 Discussion

### 6.1 Methodological considerations

#### 6.1.1 Study design

This study is a cross-sectional study and this design makes it difficult to draw conclusions on a causal relationship between the independent variables (risk factors) and the dependent variables (outcome measures). In Paper II for instance, it is not clear whether physical activity influences the MSD or, conversely, the MSD influence the amount of physical activity. On the one hand physical activity might result in less MSD, and on the other hand MSD might result in less physical activity. To study a possible causal relationship between physical activity and MSD a longitudinal design would have been needed.

Similarly in Paper III, although we ask about life-threatening events in the past, they are stated at the same time as statements on health and a clear causal relation between life-threatening events and health effects can not be stated. In Paper IV the associations between higher scores in the psychosocial scales and the occurrence of bullying should also be interpreted with caution because of the cross-sectional design and the use of the step-wise procedure.(100) A stepwise procedure finds a set of independent variables which can predict some outcome, but the results of a stepwise procedure may not automatically be used to explain or understand the dependent variable. On the other hand, the similar associations found between the scales *fair leadership*, *innovative climate* and *inequality* in the univariate and regression analyses, also when excluding data from the bullied, warrants further study of these associations.

#### 6.1.2 Healthy worker effects; confounding and selection bias

In addition to bias as a result of reverse causation linked to the cross-sectional design, we are faced with bias at two more levels; firstly, bias as a result of confounding and secondly, selection bias.(101)

Confounding occurs when the exposed and non-exposed subpopulations of the source population have different background disease risks.(102) It is commonly observed in occupational epidemiological studies that workers may have lower overall mortality or morbidity than the corresponding age group in the general population.(103) This is natural, as you have to be healthy to be able to work. This factor might be even more important in our military group than among other workers, as they need to have a health certificate to be allowed to enter and continue their employment. Furthermore, persons who develop health problems might have to stop their work as their function level decreases, and this adds to differences between the working and the general population. If you, as in our case, compare the military population with the general population, differences in health may be explained by differences in the health at the outset between these groups. When this is not taken into consideration the difference at the outset will be a confounder. This is often called “the healthy worker effect”.(102;103)

However, there is also another form of “healthy worker effect”.(101) If an exposure results in employees leaving work with health problems and one compares non-exposed and exposed workers, this may lead to weakened associations between the exposure and the measured health effect in the exposed group. To avoid this possible underestimation of a negative effect of exposure one has to include those who have left their group in the study, otherwise we will have a selection bias.

In the present studies we may in addition be faced with another form of selection bias.(101) The overall response fraction of the questionnaire survey was only 58 %, and a selection bias may appear if the personnel who did not respond in the survey had different responses to the risk factors and/or outcome measures than the responders. The responses to the questions could then be seen as conditioned on the participation in the study. This bias would have been marginalized as a problem with a high response fraction. The response fraction might have been higher if the questionnaire had been shorter than 19 pages and if the National Insurance number had not been pre-printed on the form. On the other hand, the questionnaire was submitted to an external institution to secure independent processing of the data, and this might have

encouraged participation. A study of non-responders could have answered some of our questions related to the problem of selection bias. This was not performed in any large scale, but in support of representativeness for the total Navy population, the difference in age between responders and non-responders was minor. Among military personnel there was no difference in sex distribution among responders compared to non-responders. This increases the legitimacy to generalize from the data. In Paper I, only male officers  $\geq 25$  years of age were studied. They had a response fraction of 68 %, reducing the selection bias problem. This study group was selected as they were military officers with some length of service and as we knew of the good response fraction.

### **6.1.3 Common method bias**

Common method bias is of concern in our study since both the exposure and health outcome variables were obtained using the same source for collecting the data.(104) The problem related to this is that the source may affect both the risk factors and outcome measure (a potential confounder). In Paper II and Paper III this might explain part of the association between the outcomes of physical activity and MSD and of life-threatening events and HRQoL. If the problem of common method bias is related to the personality of the responders, it is possible to adjust for the problem by including questions on personality in a questionnaire and adjust for personality.(104) However, other means may also be of value in reducing the possibility of common method bias.(104) Our questions related to MSD were clearly separated from the questions about physical activity in the questionnaire, and similarly, questions about HRQoL were clearly separated from the questions about life-threatening events. If the common method bias was the only explanation for the association between the HRQoL and the degree of coping with life-threatening events one could also have expected a similar reduction in all the subscales. This was not the case. In Paper IV the QPSNordic questionnaire has the advantage of avoiding response categories with positive or negative emotional associations, such as “very satisfied – very dissatisfied”. Such response categories might lead to biased answers.(93) Furthermore,

the associations persisted when averaging at department levels, again arguing against the common method bias as the sole explanation for the associations.

The best, but not always possible, way to avoid the common method bias is to have different information sources on the exposure and on the outcome.(105) In Paper I we had information from the Register office on military rank and age and in Paper IV on work department and age, avoiding the common method bias linked to these variables.

#### **6.1.4 Self-report**

In the studies for this thesis, we have used a questionnaire with self-reported data as the main method for collecting information. For instance, physical activity was measured by a questionnaire. We considered a questionnaire to be the only feasible method of assessing information in our larger population.(106) Direct observation would have been another measure, but would have been very resource demanding. For direct observations, a large number of observations over some time would have been needed to make a valid assessment of the work demands.

#### **6.1.5 Questionnaire and reliability and validity**

The outcome measures in the present studies for this thesis are based on questionnaires that are validated and reliability tested. The instruments used for this purpose are the SF-36 Health Survey,(92) a modified version of the standardized Nordic questionnaire about MSD(94) and questions about bullying from the QPSNordic.(93)

The SF-36 Health Survey has been used in a wide range of studies including normative data for general and specific populations and in documenting disease burden.(41;92;107;108) This instrument has also been validated in Norway.(107;108) Out of four generic health status measures used in a cross-sectional study, the SF-36 was shown to be the most suitable measure of health status to discriminate between groups in a relatively healthy population.(109)

The Nordic questionnaire about MSD is standardized and specific characteristics of work strain are reflected in the frequency of responses to the questionnaires.(94) The

frequency of symptoms as response options for low back pain has been shown to correspond well with the number of days with symptoms.(110)

The question “Have you been subjected to bullying or harassment at the workplace during the last six months?” is a self-labelling question stated after a given definition. Self-labelling questions are similarly used in many studies, but often include the frequency of bullying.(80) In the validation of the QPSNordic, there were 13.2 % in a Nordic population of 1961 workers who observed bullying and 4.0 % who were bullied.(93) The figures seem reasonable compared with findings in other studies.(111)

For some of our risk factors (independent variables) we used some non-validated questions to be able to include those risk factors into our study, as validated instruments were not found. This was for instance the case for our questions on physical activity, combining both light and hard activity for both leisure time and work. Recently evaluated instruments of self-reported physical activity at leisure time have included both light activity and hard activity,(112;113) but have used other questions for work time activity.(113) Since all Navy personnel were allowed to perform physical exercise two hours per week in their workday hours, we used the same measure for work time and leisure time physical activity.

The question at leisure time on light physical activity has been shown to have low reproducibility, whereas the questions on hard physical activity showed acceptable reproducibility.(113) In the present study, we also did our analysis without data on light physical activity in Paper II. This did result in a slight reduction in the inverse association between MSD and physical activity, which might indicate that light physical activity is of some importance in our study.

Self-reported physical work demands have shown good reproducibility and validity for questions with duration or frequency of work with hands above the shoulders,(106) and it may be that physical stressors indices such as constructed in the present study are more reliable and capture greater variability of exposure than single items. In our study population more than 71 % had  $\geq 14$  years of education, and single items reproducibility for questions about physical work demands have generally been



highest for those with higher education. The magnitude of musculoskeletal symptoms has had little influence on the reproducibility.(106)

In the present study we used a single question about life-threatening events combined with a question about the degree of putting the life-threatening events behind as the measurement procedure. This was similar to suggestions for general practitioners to use direct, simple questions to detect a trauma history,(114;115) and suggestions to combine such questions with a simple follow-up question that could make a connection between the patient's symptoms and previous trauma.(115) The second question about putting the events behind may function as a measure of the symptoms still present from the life-threatening events knowing that, in most cases, such symptoms diminish over time (i.e., they are “put behind”). Asking about the number of life-threatening events was based on a previous study among Norwegian Navy shipwrecked personnel.(98) The results showed that the single-exposure group revealed an increase in perceived quality of life over time measured by the General Health Questionnaire (GHQ-30), while the repeated-exposure group showed an decrease in perceived quality of life.

The QPSNordic has been shown to provide reliable information on different work organizations and the scales have been proven relevant in measuring distress and job satisfaction.(93) The test-retest reliability of the scales used in Paper IV ranged from 0.67 for the scale *inequality* to 0.83 for *support from friends and relatives*.

## 7 Main discussions

This thesis may be seen as a part of the project HSE Navy, where the overriding goal was to give a basis for further action regarding the health, safety and environment work within the RNoN. Several other scientific papers have been published for this purpose.(32;116-122)

In the context of giving a basis for further action regarding the health, safety and environment work within the Navy some points may be made based on the results in this thesis. The male military officers' population had similar good HRQoL compared to the Norwegian working population with the same educational level, and the prevalence of MSD for the whole study population was low compared to studies in other working populations. These findings are in support of a good health status among the Navy personnel.(33;123;124) However, they do not preclude that groups of military personnel have health problems that need to be evaluated closer with regards to prevention and treatment. There were 26 % current smokers among the male military officers and, compared with never smokers and ex-smokers, they reported the lowest scores on six out of eight SF-36 subscales. Another group of personnel with low scores on the SF-36 subscales were those who had not been able to put the life-threatening events behind. Among 922 personnel with such events, 44 persons (4.8 %) had not been able to put these events behind and had clearly lower HRQoL on six out of eight SF-36 subscales. We also found a group of military personnel that were bullied and some more that observed bullying. Bullying is detrimental to health for the victims(73;75;77) and to some extent for the bystanders.(73;77) Although we found that the Navy prevalence of life-threatening events among all personnel (43 %) and bullying among military personnel (2.5 %) was not high compared to other populations, these phenomenon deserve attention with regard to prevention and action. It is also of interest that close to two thirds of the Navy personnel who had experienced life-threatening events had experienced such events at work.

Overall there were 27 % smokers among the employees, more among the civilian (32 %) than the military (25 %) personnel. In 2002/2003 approximately 35 % of those with

12 years of education and only 15 % of those with college or higher level education were smokers in Norway.(125) This indicates that smoking is a hazard to health in the Navy as much as in the general Norwegian population.

We found that more physical activity was associated with a lower prevalence of MSD among all employees and better HRQoL among the military personnel. Based on these results and previous knowledge on the positive effects of physical activity on health,(50) we recommend that physical activity is encouraged and facilitated as a part of the Navy work environment for promoting good health among the employees.

Attention to the work environment is also encouraged based on the association we found between the psychosocial work environment and the occurrence of bullying. This association was present even without the observations from those who were bullied themselves, both at the individual level and at the department level. The work environment in itself seemed to play an important role for the occurrence of bullying, and we found that fair leadership might be important in preventing bullying. Promoting a good psychosocial work environment and good leadership should be emphasized in the Navy.

## **7.1 Health-related quality of life**

Our hypotheses studied in Paper I; the military officers of the Navy have a better health status compared with the Norwegian population and the rank of military officers is associated with the health status of the officers were not confirmed. When using the SF-36 as a health status measure for populations studies, it is common to compare with the general population adjusting for age and sex.(126;127) With this comparison we found a better health status for our study populations for all of the eight SF-36 subscales. However, because of the potential healthy worker effect for people employed,(103) and because higher education had previously been shown to be associated with higher scores on the SF-36 subscales,(128;129) we compared our data with data from a general working population and adjusted for educational level. No differences with respect to the health status using the SF-36 Health Survey were found between our naval population and the Norwegian working population. Our study

confirms the importance of adjusting for educational level as one possible measure of socioeconomic status when comparing population health.(130)

In the present study we found no increase in the association between higher military rank and the SF-36 subscales when we adjusted for educational level and age. Other studies have shown that lower military rank was associated with both physical and mental ill health.(131-133) These studies included lower ranks than military officers, whereas the scope of our study was to see if the association was present within the military officers rank. Among male military officers it seems that military rank adds no additional information to their health status according to the SF-36 when adjustments for educational level and age have been made.

We think our study with a fairly high participation fraction and a very low missing substitution for the SF-36 scales is possible to generalize from with regard to naval military populations. However, one should bear in mind that we did not include women in the present study.

## **7.2 Physical activity and musculoskeletal disorders**

Our hypothesis studied in Paper II; the Navy military personnel have a lower occurrence of MSD compared with the Navy civilian personnel was in part confirmed as the civilian personnel had an increased risk of having MSD in their neck and in their lower back compared with the military personnel, but not for the seven other body parts. The second hypothesis; a higher level of physical activity at work and at leisure is associated with a lower occurrence of MSD among naval personnel was confirmed for six out of nine body parts.

The civilians had a higher prevalence of MSD than military personnel for the neck and lower back when adjusted for age, sex, physical activity, BMI, smoking, education and physical stressors. The difference between civilians and military personnel might be explained by the selection of military personnel due to requirements for fitness for duty.(24) There may also be selection out of the Navy for the most unfit military personnel as they have to pass annual fitness tests. However, other factors such as

differences with regards to psychosocial factors for the military and civilian personnel may explain the difference in MSD between the two groups.(134;135) Traumatic events might also be linked to MSD, and there might be a relationship between MSD and PTSD.(136) Although the military personnel in our thesis had a twofold risk of experiencing a life-threatening event, the civilians had a fivefold risk for not putting such events behind. This could imply a difference in the prevalence of MSD in these two groups. This is also compatible with our findings that those who had not put their life-threatening events behind had lower scores on the SF-36 subscale *bodily pain*.

Despite considerable knowledge about musculoskeletal conditions and physical, psychosocial and individual risk factors,(52;135;137) little is known about physical activity as a factor in preventing musculoskeletal conditions in the total population. This is also the case for the most common MSD; non-specific low back pain. (49;53) Although this was a cross-sectional study with no interventions, our findings of an association between more physical activity and less MSD for six out of nine body parts, including low back pain, seem to support the hypothesis that physical activity is also of benefit in preventing MSD. As our study population consisted of people at work and probably very few people with severe and chronic pain unable to perform physical activity, this could indicate that personnel taking the effort to exercise get less MSD.

Although physical activity at work might include physical activities that both benefit and harm musculoskeletal health, a review study on worksite physical activity programmes concluded with positive effect on MSD.(138) However, not all types of physical activity seem to benefit musculoskeletal health. Uncomfortable working positions, lifting or carrying loads, and pushing or pulling loads increased the risk of onset of long term sickness absence in a Danish study.(139) In our study we did find that high scores on the physical stressors index scale based on having been exposed to heavy lifting, working in twisted positions or working with arms above shoulder height showed an increase in the association with MSD. This was the case for seven out of nine body parts for those with the highest category of physical stressors compared to those with the lowest category of these stressors.

Review studies on the dose-response relationship between physical activity and health conclude that several health parameters are related to the amount of physical activity in a graded fashion.(50;140) There is still a debate on the intensity level of physical activity needed to benefit health. In the present study we found a reduction in the association between MSD and physical activity when leaving the data on light physical activity out of the analysis. An interpretation could be that light physical activity contributes to the reduction of MSD. Intuitively one would think that light physical activity might be of more importance in a population with very low activity and the phenomenon would probably best be studied in such a population.

### **7.3 Coping with life-threatening events**

Our hypothesis studied in Paper III was confirmed. The Navy personnel who had experienced life-threatening events which they had not been able to cope with had lower self-perceived health than personnel who did cope with such events.

We found that not putting the life-threatening events behind was associated with low scores on the SF-36 scales *bodily pain, general health, vitality, social functioning, role emotional* and *mental health* scales. The associations were weak or non significant for the *physical functioning* and *role physical* scales. This indicates that not coping with life-threatening events may affect certain aspects of health more than others. In this case the more mental aspects were affected. This nuanced picture of the consequences of not coping with life-threatening events was possible to find using a broad spectre outcome measure like the SF-36.

Although no attempt was made to ascertain any diagnosis of PTSD in our study, it is reasonable to suspect that a considerable fraction of the persons not coping with life-threatening events may have had PTSD. PTSD is classified as an anxiety disorder and is typically defined by the coexistence of three clusters of symptoms, namely re-experiencing, avoidance and hyper arousal,(141) and the person in question has to have had a traumatic event. In about a tenth of incidences, life-threatening events lead to PTSD.(57) Another possible diagnosis among those who had not put the life-threatening events behind could have been depression.(57;62;142) Although it has

been suggested that negative health effects following life-threatening events do not develop in the absence of PTSD,(57) there is also evidence for negative health effects of trauma mediated through other distress reactions such as depression.(62)

In two studies of U.S. military personnel, individuals with PTSD had significantly lower scores on all the SF-36 scales compared to those without PTSD.(143;144) Our findings of the negative health effect for those who had “not at all” put the life-threatening events behind, as measured by the *mental health* scale, are supported by these studies. However, our findings do not show the larger differences found in these previous studies on the *physical functioning* and *role-physical* scales. This might be explained by the fact that we studied people at work and in good health. Being still employed has previously been associated with better health related to physical functioning among military veterans.(145) Although unemployment after a disaster predicted persistence of PTSD,(146) further studies are needed to find whether the better physical functioning among people at work is an effect of staying in a job, or a selection out of work for those most seriously affected by life-threatening events, or whether PTSD primarily affects mental health. Similar to our study, PTSD was not associated with a reduced physical functioning in recent studies among workers of other occupations.(147;148)

There might be weaknesses in the method of using only two questions to explore the occurrence of problems related to life-threatening events. However, the combination of two simple questions as chosen in this study could be of use in a clinical situation with limited time to ask many questions about various exposures. A Dutch study did show a good correspondence rate of GP-reported and self-reported persistent psychological problems for those who had been highly exposed to or had to move due to a large disaster.(149) In a situation without such obvious consequences for the survivors, the measurement procedure used in the present study of a single question about life-threatening events combined with a question about the degree of putting the life-threatening events behind appeared to suffice in separating the personnel into groups with clinically significant differences in HRQoL. The second question about putting the events behind may also function as a measure of the symptoms still present from

the life-threatening events, knowing that, in most cases, such symptoms diminish over time (i.e., they are “put behind”).(115) When persons have been asked whether they have experienced life-threatening events, and they have only to a small extent been able to put these events behind, further examination would be advisable.(114) In the present study this seemed independent of occupational groups as both the military personnel and the civilians who had not put the events behind had similarly lowered HRQoL. Shorter questionnaires for screening of PTSD(150;151) have been developed and may be of use in combination with the questions used in the present study. However, the questions used in the present study still seem to be useful with a further validation and reliability testing.

It is worth noting that the expression “to put something behind” is a commonly used expression in Norwegian. It does not necessarily imply that one has “worked through it.” The expression to “work through something” is also an expression used in Norwegian and may be a more commonly used expression in English after having experienced a life-threatening event.

The military personnel had more often put life-threatening events behind themselves than the civilians. This could be related to the manoeuvres the military personnel repeatedly participate in, where handling crises is a part of the scenario.(18) This may be due to sufficient training, enhancing task-focused coping,(152) or it might be a result of a better follow-up of active military personnel.(153) Healthy worker selection might also have some importance as military personnel must have a health certificate.(102) Nevertheless, comparing different occupational categories in future studies may be of use for the understanding of how to cope with such events.

## **7.4 Psychosocial factors at work and bullying**

Our hypothesis studied in Paper IV was confirmed. Psychosocial factors related to group and social interaction at work among military naval personnel were associated with bullying both at the individual level and at the department level even when the bullied were excluded from the analysis.



Although we studied fragments of the conceptual model for population health, the understanding of how bullying occurs may be of importance for research within life course processes where exposures across the life is linked to later life health outcomes.(154) Bullying is a negative factor for the working populations' health.(75;76;155-157) Finding that the occurrence of bullying is associated with a negative psychosocial work environment adds evidence to psychosocial factors at work as possible independent risk factors for population health.

The scale *fair leadership* was the factor most strongly associated with bullying in our study, both at the individual and department level. This suggests that fair leadership is important in preventing bullying. Other studies have reported the importance of leadership in association with bullying. Management style in a Danish study included questions about whether leaders discriminated among employees and about conflicts with leaders and found that a negative management style was associated with more bullying.(83) In an early Norwegian study on bullying, there were questions included in the leadership scale about the satisfaction with management organization and feedback. This study found that dissatisfaction with the leadership was associated with more bullying.(84) In a recent Norwegian study,(74) the leadership behaviours were measured by three scales; constructive, tyrannical and laissez-faire leadership behaviour, of which the last two were strongest associated with bullying. In this study it was also shown that there were some differences in the associations between the leadership behaviour and bullying, according to whether bullying was measured by the Negative Acts questionnaire or by self-labelling of bullying. Only tyrannical leadership was associated with self-labelling of bullying in a multiple regression analysis when the leadership scales and other psychosocial factors at work were included in the model. Although the *fair leadership* scale we used has elements similar to the other leadership instruments, we think our study adds to the knowledge of the importance of leadership on the occurrence of bullying.

Our study did not include questions about personality, which might affect the outcome on how the psychosocial work environment is reported. In one study a subgroup of bully victims had a more negative perception of work compared to controls who had

not been victimized.(158) Another study comparing personality profiles found that one third of the victims were less agreeable, conscientious and extravert than non-victims, but with regard to these profiles two thirds of those bullied had personalities quite like workers who were not bullied.(159) However, the two-thirds group, although quite similar, was more emotionally unstable and had higher intellect than the non-bullied. In a third longitudinal study, a negative psychosocial work environment was associated with an increase in depressive symptoms.(160) When the analysis included personality factors they contributed independently to the occurrence of depressive symptoms, but the psychosocial factors were still significant predictors for the increase of depressive symptoms and the predictor estimates changed minimally. Although personality may be a confounder in our study, the associations between the psychosocial scales and observing bullying did not change markedly when we excluded the ones being bullied.

## **7.5 Is generalisation from this study possible?**

It is important to underline that this study was performed in peace time. How the health of the workers in the Navy would have been in a war situation has not been the issue, and will probably represent a totally different situation both for health and work environment.

The navies in different countries constitute all together a large global workplace. The data from this study are Norwegian, but the conclusions of this thesis should be of interest to other navies operating in peace like scenarios. Although the navy work environment differs in some respect from other parts of the armed forces there are also similarities, meaning that the findings in the present study may be of interest to other military working populations; the army and the air force.

The population selected for this study is not quite comparable to the general population, and even a generalisation from the findings in this thesis to the Norwegian *working population* should be done with caution. The general working population does not have a requirement for health certification like the military population of the present study, and therefore comparison should be limited to workers with similar

requirements. However, the present study also includes civilians with no such health requirement. Some comparisons have been made between the military personnel and the civilians, and the results from these studies may be of interest, for instance when studying MSD or life-threatening events. In addition, the phenomenon of bullying is a general human problem and the findings in the present study may be of interest in all work organizations with leaders and employees. However, these types of comparisons should also be performed with some caution.

## 8 Study conclusions

*The aim of study I* was to compare the health status among naval officers with that of the general population of Norway. The study also investigated the association between HRQoL and military officers' rank, adjusted for lifestyle, demographic, and educational variables.

The naval officers in the Navy had a similar health status to the working population in Norway with similar educational level. Military rank was not independently associated with the health status among the naval officers when adjustments for lifestyle, demographic, and educational variables were made.

*The aims of study II* were to determine the prevalence of self-reported MSD among military personnel and civilians in the Navy; and to assess the association between physical activity at work and at leisure and MSD.

The civilian personnel had a higher prevalence of MSD than military personnel in nine body parts, and after adjusting for demographic variables, life-style factors and education the civilians still had more MSD than the military in the neck and lower back. A relationship between higher physical activity and less reported MSD was found for the body parts neck, shoulders, hands, upper back, lower back and hips, but not for the elbows, knees and feet when adjusted for employment status, years of age, sex, BMI, smoking, education and physical stressors.

*The aim of study III* was to study the relationship between experiencing and coping with life-threatening events and self-perceived health in a naval population operating mainly under peaceful circumstances.

The military personnel seemed more likely to have put the events behind than the civilians. The extent of putting life-threatening events behind oneself was clearly correlated to health status as measured by the SF-36 scales *bodily pain*, *general health*, *vitality*, *social functioning*, *role-emotional* and *mental health*, and we found a marked dose-response effect in these associations. The personnel who had "not at all" put the

events behind had considerably lower outcomes on these scales compared to those who had not experienced life-threatening events.

*The aim of study IV* was to study whether psychosocial factors at work were associated with bullying when observed by individuals, or observed by groups of individuals in different departments, or both. The aim was also to see whether these associations changed when data from the bullied were excluded.

The psychosocial work environment as measured by the group and organizational QPSNordic scales *fair leadership*, *innovative climate* and *inequality* scales were associated with high occurrence of bullying at the individual and at the department level; meaning that unequal treatment and lack of fair leadership and innovative climate were associated with high occurrence of bullying. Repeating the analyses excluding those being bullied changed the estimates minimally.

## 9 Further research

A physically active lifestyle both at work and at leisure was associated with less MSD in most parts of the body among both military personnel and civilians. Prospective studies are necessary to confirm cause and effect in this association. Our study population engaged in heavy physical activity; the positive impact of light physical activity on MSD indicated in our study findings should be studied in a population doing predominantly light activity.

We found that physical function was not impaired in those who had not been able to put the life-threatening events behind. Longitudinal studies are needed to find out whether the good physical functioning among these people at work is an effect of staying in a job, or a selection out of work for those most seriously affected by life-threatening events. We did not study whether the level of physical activity was associated with the reported physical functioning or the other health outcomes among those not coping with life-threatening events; this should be studied further.

We found an association between higher scores in the *fair leadership*, *innovative climate* and *inequality* scales and less observed bullying, both when analyzing individual data and data at department level. Furthermore, the findings were similar when the analysis was repeated excluding those being bullied. These observations indicate that the work environment is important to the occurrence of bullying. Still, because of the cross-sectional design and because of the step-wise procedure, prospective studies are needed in order to estimate the impact of these psychosocial factors on the frequency of bullying. Furthermore, as personality may be a confounder in our study, prospective studies are needed to study to what extent personality plays a role for the occurrence of bullying.

Observing bullying was more prevalent among the younger age groups and military personnel with lower ranks. The findings seem to contradict the findings in a British study where middle and senior ranking managers were more likely to have witnessed bullying than supervisors and workers.(161) One potential cause for our findings is that the younger age groups and military personnel with lower ranks observe more people, including conscripts. Another reason may be that younger personnel have not socialized into the Navy yet, and thus

have not been familiarized with Navy culture.(162;163) Prospective studies are needed from the time the personnel enter the military service.

Some of the research questions we have studied in this thesis could have been answered better in a follow up of our military study population and preferably in comparison with other populations. One possibility could be to compare our military population with working populations that have a health certificate requirement and a clear ranking system, such as the fire-brigade and police. In one study it was found that the UK Naval Service personnel seemed to have the same level of strain as the UK police force.(164) Another possibility would have been to link up our data with data from the ongoing Millennium Cohort study among presently employed military personnel.(165) This study has a large group of navy personnel and includes the SF-36 as one of the measuring instruments.





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# Appendix I





## *Generalinspektøren for Sjøforsvaret*

### **PROSJEKT HMS Sjø**

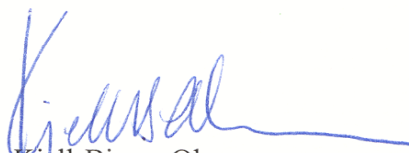
Som Generalinspektør i Sjøforsvaret har jeg et mål om å gi alle medarbeidere et trygt og givende arbeidsmiljø.

I flere år har der vært stilt spørsmål om Sjøforsvaret har utsatt personellet og deres familier for helsefare. Det er en situasjon ingen av oss kan leve med. I januar 2001 besluttet jeg sammen med Forsvarets øvrige ledelse å gjennomføre en kartleggingsundersøkelse for å avdekke om Sjøforsvarets aktiviteter er eller har vært helsefarlig. Undersøkelsene som blir gjennomført skal gi grunnlag for videre tiltak innen helse-, miljø- og sikkerhetsarbeidet i Sjøforsvaret.

Kartleggingen er nå i en fase der helseforholdene for den enkelte medarbeider skal samles inn for statistisk bearbeidelse. Målet er å se om tjenestested og tjenestetype kan ha medført helseskade på Sjøforsvarets personell eller deres barn. Skjema blir sendt ut til befal og sivile som er ansatt i, eller har tilknytning til, Sjøforsvaret.

For å sikre en uavhengig vurdering gjennomføres undersøkelsen av Universitetet i Bergen i samarbeid med Kreftregisteret. Utformingen av skjema er gjort i samråd med sivile og militære tjenestemannsorganisasjoner. Undersøkelsen er klarert av Regional komité for medisinsk forskningsetikk Helseregion Vest og godkjent av Datatilsynet.

Jeg vil understreke at deltakelsen i undersøkelsen er frivillig.



Kjell-Birger Olsen  
Kontreadmiral



Bergen, oktober 2002

## Til de ansatte i Sjøforsvaret og øvrig befal og sivile tilknyttet Sjøforsvaret

### SPØRREUNDERSØKELSE - PROSJEKT HMS Sjø

Seksjon for arbeidsmedisin ved Universitetet i Bergen har fått som oppgave å gjennomføre en kartlegging av helse, miljø og sikkerhet for de ansatte i Sjøforsvaret og øvrig befal og sivile tilknyttet samme forsvarsgren, og vi håper du vil hjelpe oss med denne.

En viktig del av kartleggingen er gjennomføring av denne spørreundersøkelsen, som består av to deler. Del 1 er til dels utviklet i forbindelse med Prosjektet HMS Sjø, men tar også opp generelle spørsmål rundt fysisk og psykisk helse. Spørsmålene er detaljerte for best mulig å finne sammenhenger mellom arbeidsmiljøet og de ansattes helse. Del 2 tar opp spørsmål om det psykososiale arbeidsmiljøet og er utviklet av en Nordisk ekspertgruppe. Denne delen vil kunne gi informasjon om viktige miljømessige tiltak for å bedre arbeidsmiljøet eller opprettholde et godt arbeidsmiljø. Det er fint om du svarer på alle spørsmålene, men dersom det er noen du ønsker å hoppe over, ber vi deg likevel svare på de resterende. Det vil ta cirka en time å fylle ut spørreskjemaet.

I prosjektperioden vil det være mulig å knytte dataene mot person for lege på Universitetet i Bergen. Legen kan kontakte deg dersom det finnes grunner til å gjøre en videre helseundersøkelse av deg ut fra de opplysningene du gir. Dette kan du imidlertid reservere deg mot på det vedlagte skjemaet for samtykke. Dataene mottas og behandles av personer med taushetsplikt. Skjemaene vil bli oppbevart nedlåst. Datafiler vil kun være tilgjengelig for de prosjektansvarlige.

Prosjektet innebærer også at vi senere kan koble data fra spørreskjemaet mot Krefregisteret, for å undersøke forekomst av kreft blant ansatte i Sjøforsvaret.

Når prosjektet er ferdig, makuleres personidentifiserbare data ved Universitetet og Krefregisteret. Dataene skal videre lagres i Forsvarets helseregister. Dette er under etablering, og gjør det mulig å forske på helse i Sjøforsvaret i fremtiden. Dataene vil ikke være tilgjengelig for Forsvarets ledelse.

Ledelsen for Prosjekt HMS Sjø vil få en rapport fra undersøkelsen som vil inneholde anonymiserte data slik at enkeltpersoner og mindre arbeidsenheter ikke kan identifiseres. Rapporten vil danne grunnlag for Sjøforsvarets oppfølging av helse, miljø og sikkerhet for de ansatte i årene som kommer.

Ferdig utfylt skjema legges i vedlagte returkonvolutt, som limes igjen og postlegges. Vi ber deg fylle ut skjemaet og postlegge det innen 1. november 2002, sammen med din underskrift om at du har lest dette brevet og samtykker i å delta i undersøkelsen (se neste side).

Vi gjør oppmerksom på at det er frivillig å delta i undersøkelsen, og du har rett til å trekke deg underveis.

Dersom du har spørsmål kan du kontakte: Seksjon for arbeidsmedisin på tlf. 55 58 62 99.

Bente Moen  
professor/lege

Kristin Bondevik  
sykepleier

Nils Magerøy  
lege/forsker

Gateadresse:  
Ulriksdal 8c

Postadresse:  
5009 BERGEN

Telefon:  
55 58 61 00

Telefaks:  
55 58 61 05



### SAMTYKKESKJEMA

Det er viktig at du signerer på dette arket og sender det til oss sammen med utfylt spørreskjema.

---

#### SAMTYKKE

1. Jeg har lest informasjonsbrevet om spørreskjema undersøkelsen i Sjøforsvaret oktober 2002, og samtykker i å fylle ut skjemaet.
2. Jeg samtykker også i at mine data kan kobles til Kreftregisteret, og på den måten gjøre det mulig å studere forekomst av kreft blant ansatte i Sjøforsvaret.
3. Jeg er kjent med at dataene til sist skal lagres i Forsvarets helseregister.

Jeg ønsker / ønsker ikke at lege skal ta kontakt med meg dersom det finnes medisinsk grunn for det (stryk det som ikke passer).

Jeg ønsker / ønsker ikke at mine data skal bli koblet mot Kreftregisteret, for å være med i et studium av kreftforekomst i Sjøforsvaret (stryk det som ikke passer).

Jeg ønsker / ønsker ikke at mine data skal lagres i Forsvarets helseregister, slik at de kan brukes i fremtidig forskning på helse i Sjøforsvaret (stryk det som ikke passer).

Dato: \_\_\_\_\_

Navn: \_\_\_\_\_





+



+



Fregatten Nordstjernen

# PROSJEKT HMS SJØ

+

## SPØRRESKJEMA

+

+





Kategori arbeidssted	Begynte år	Sluttet år	Kategori tjenesteområde	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	+
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	+
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	+

**Dykking**

7a. Har du arbeidet som dykker i Sjøforsvaret?

Ja

Hvor mange dykk har du?

Antall dykk (cirka)

 Nei

Hvor dypt har du dykket (dypeste dykk)?

Antall meter (cirka)

7b. Har du drevet dykking i fritiden eller arbeidet som dykker annet sted enn i Sjøforsvaret?

Ja

Hvor mange dykk har du til sammen i fritid og annet arbeid?

Antall dykk (cirka)

 Nei

Hvor dypt har du dykket (dypeste dykk)?

Antall meter (cirka)

**Røykdykking**

8. Har du arbeidet som røykdykker i Sjøforsvaret?

Ja

Angi antall dykk fra null og oppover delt inn etter følgende typer dykk:

Antall dykk (cirka)

 Nei

Kalddykk ved øvelser:

Antall dykk (cirka)

+

Varmdykk ved øvelser:

Antall dykk (cirka)

Røykdykk ved reell brann:

Antall dykk (cirka)

**Verkstedsarbeid**

9. Har du arbeidet på verksted i Sjøforsvaret?

Ja

Hvor stor prosentdel av arbeidstiden har du brukt ombord i fartøy/ubåt?

0–20%

20–50%

Over 50%

 Nei**Ubåttjeneste**

10. Har du tjenestegjort på ubåt?

Ja

Angi antall døgn i neddykket tilstand

Antall døgn neddykket (cirka)

 Nei

+

**Arbeid i fjellanlegg**

11. Har du arbeidet i fjellanlegg i Sjøforsvaret?

Nei

Ja

→ Hvor mange måneder eller år vil du anslå at din samlede arbeidstid har vært inne i disse anleggene?

Måneder

eller

År

**Arbeid i utlandet**

12. Har du i ditt arbeid i Sjøforsvaret hatt opphold i utlandet?

Nei

Ja

→ Hvor mange måneder eller år vil du anslå at ditt samlede opphold har vært i utlandet?

Måneder

eller

År

**Skifte av stilling og/eller arbeidssted**

13. Har du i løpet av de siste to årene skiftet stilling og/eller arbeidssted i Sjøforsvaret? +

Ja



Var skiftet noe du ønsket eller ikke ønsket? (sett ett kryss)

Sterkt ønsket

Noe ønsket

Hverken ønsket eller uønsket

Litt uønsket

Sterkt uønsket

Har ikke gjort meg opp noen mening om det

Nei

+

**Reisedøgn**

14. Hvor mange reisedøgn har du per år? (Sett ett kryss for å angi antall døgn det siste året)

0-10

11-30

31-60

61-100

101-150

151+

+

**Arbeidssteder**

15. Noen arbeidssteder har vært i medias søkelys. Vi ber deg se igjennom listen nedenfor til venstre og svare på spørsmålet om du har tjenestegjort på noen av disse stedene.

**Arbeidssted**

1 = Rødbergodden fort

2 = Meløyvær fort

3 = Grøtsund fort

4 = Skrolsvik fort

5 = Sandsøy fort

6 = KNM Kvikk

7 = Radioverkstedet på Haakonsværn

8 = Tjeneste på Balkan

9 = Tjeneste i Gulfen

**Kategori tjenesteområde**

50 = Artilleri/ammunisjon

51 = Torpedo/mine

52 = Operativ/operasjonsrom/navigasjon

53 = Båtsmann/dekk

54 = Maskin/skipsteknisk maskin

55 = Elektro/skipsteknisk elektro

56 = Tele/samband/signal/ek

57 = Elektronikk-våpen

58 = Radar/sonar

59 = Dykkertjeneste

60 = Røykdykkertjeneste

61 = Maler/snekker

62 = Intendantur/forvaltning/idrett/velferd

63 = Forpleining/bysse/kjøkken

64 = Sanitet/sykepleier/lege

65 = Militærpoliti (MP)

66 = Musikk

67 = Annet

Har du tjenestegjort noen av disse stedene?

Nei

→ Gå til spørsmål 16.

Ja



Hvis ja, skriv *nummeret* for hvert arbeidssted inn i det første feltet i tabellen nedenfor (ta med 1. gangs tjeneste), og fyll inn årstall for når du begynte og sluttet, og til slutt *kategorinummeret* for tjenesteområdet. Begynn med ditt første arbeidssted.

Arbeidssted	Begynte år	Sluttet år	Kategori tjenesteområde
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
+	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

forts.

	Arbeidssted	Begynte år	Sluttet år	Kategori tjenesteområde
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
+	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
				+

16. Har du i ditt arbeid i Sjøforsvaret nå eller tidligere vært i kontakt med eller jobbet med noen av disse stoffene/har du vært utsatt for noe av det følgende? (Sett ett kryss for hver linje og angi på den måten en gradering.)

	Aldri	Svært lite	En del	Mye	Svært mye	Vet ikke
Løsemidler/maling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hudkontakt med olje/bensin/diesel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damp fra olje/bensin/diesel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyk fra oljebrann	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eksos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprøytemidler mot udyr/ugras	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Støv fra sandblåsing/sliping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sveising/skjærebrenning/skrogarbeid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bly (kuler/våpen)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eksplosiver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere HF antenner enn 10 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere sambandsinstallasjoner/ senderantenne enn 3 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere radar enn 5 meter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Støy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vibrasjoner/risting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rivningsarbeid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunge løft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vridde arbeidsstillinger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arbeid med armer over skulderhøyde	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passiv røyking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asbest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17a. Har du i ditt arbeid i Sjøforsvaret vært utsatt for hendelser som du opplevde som livstruende? (Sett ett kryss)

Ja, en gang

Ja, flere ganger Hvis ja, før på antall ganger:

+

Nei → Gå til spørsmål 18.

17b. Dersom du en eller flere ganger har vært utsatt for livstruende hendelser i Sjøforsvaret, i hvilken grad har du lagt eller ikke lagt disse hendelsene bak deg? (Sett ett kryss)

Lagt dem helt bak meg.

Lagt dem en god del bak meg.

Lagt dem litt bak meg.

+

Ikke lagt dem bak meg.

Har ikke gjort meg opp noen mening om det.

+

## Yrkeserfaring og eksponeringer utenom Sjøforsvaret

18. Har du utenom Sjøforsvaret, i annet arbeid eller fritid, vært i kontakt med noen av disse stoffene/har du vært utsatt for noe av det følgende? (Sett ett kryss for hver linje og angi på den måten en gradering.)

	Aldri	Svært lite	En del	Mye	Svært mye	Vet ikke
Løsemidler/maling . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hudkontakt med olje/bensin/diesel . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damp fra olje/bensin/diesel . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyk fra oljebrann . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eksos . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprøytemidler mot udyr/ugras. . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Støv fra sandblåsing/sliping . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sveising/skjærebrenning/skrogarbeid . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bly (kuler/våpen) . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eksplisiver . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere HF antenner enn 10 meter. . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere sambandsinstallasjoner/ senderantenne enn 3 meter . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobbet nærmere radar enn 5 meter . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Støy . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vibrasjoner/risting . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rivningsarbeid . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunge løft. . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vridde arbeidsstillinger . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arbeid med armer over skulderhøyde . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passiv røyking . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asbest. . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

19a. Har du utenom Sjøforsvaret vært utsatt for hendelser som du opplevde som livstruende? (Sett ett kryss)

Ja, en gang

Ja, flere ganger Hvis ja, før på antall ganger:

Nei → Gå til spørsmål 20.

+

19b. Dersom du en eller flere ganger har vært utsatt for livstruende hendelser utenom Sjøforsvaret, i hvilken grad har du lagt eller ikke lagt disse hendelsene bak deg? (Sett ett kryss)

Lagt dem helt bak meg.

Lagt dem en god del bak meg.

Lagt dem litt bak meg.

Ikke lagt dem bak meg.

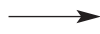
Har ikke gjort meg opp noen mening om det.

+

+

**Yrkeserfaring utenom Sjøforsvaret**

20a. Har du yrkeserfaring utenom Sjøforsvaret?

 Ja


Hvor mange måneder eller år?

Måneder

eller

År

+

 Nei


Gå til spørsmål 21.

20b. Hvilke type arbeid har du hatt utenom Sjøforsvaret? Her ber vi deg om å plassere hver type jobb i en av disse kategoriene:

1 = Primærnæring (jordbruk, skogbruk, fangst og fiske)

3 = Industri

2 = Håndverk

4 = Annet

Skriv *nummeret* for hver type jobb inn i første kolonne nedenfor, sammen med opplysninger om når du begynte, når du sluttet, og yrkestittel. Eksempelet er fylt ut for en som har arbeidet som elektriker i byggebransjen fra 1996 til 2000.

Jobb-kategori nr	Begynte år	Sluttet år	Yrkestittel
Eks.: 2	96	00	E L E K T R I K E R
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Egen helse**

21a. Hvor mye veier du?

kg

21b. Hvor høy er du?

cm

22. Har du vært til røntgen- eller skjermbildekontroll av lungene?

 Ja


Hvis ja, fyll ut årstall for siste undersøkelse:

Årstall

 Nei

+

+

+



Spørsmålene 23-33 handler om hvordan du ser på din egen helse. Noen av dem kan virke unødvendige, men vi ber deg likevel svare på alle. Hvert spørsmål skal besvares ved å sette ett kryss i den ruten som passer best for deg.

23. Stort sett, vil du si at din helse er:
- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Utmerket                 | Meget god                | God                      | Nokså god                | Dårlig                   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

24. Sammenlignet med for ett år siden, hvordan er din helse nå?

- |   |   |   |
|---|---|---|
|   | <input type="checkbox"/> Mye bedre enn for ett år siden         | + |
|   | <input type="checkbox"/> Litt bedre enn for ett år siden        |   |
|   | <input type="checkbox"/> Omtrent den samme som for ett år siden |   |
| + | <input type="checkbox"/> Litt dårligere enn for ett år siden    |   |
|   | <input type="checkbox"/> Mye dårligere enn for ett år siden     | + |

25. De neste spørsmålene handler om aktiviteter som du kanskje utfører i løpet av en vanlig dag. Er din helse slik at den begrenser deg i utførelsen av disse aktivitetene nå? Hvis ja, hvor mye?

	Ja, begrenser meg mye	Ja, begrenser meg litt	Nei, begrenser meg ikke i det hele tatt
a. Anstrengende aktiviteter som å løpe, løfte tunge gjenstander, delta i anstrengende idrett . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Moderate aktiviteter som å flytte et bord, støvsuge, gå en tur eller drive med hagearbeid . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Løfte eller bære en handlekurv . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Gå opp trappen flere etasjer . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Gå opp trappen en etasje . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Bøye deg eller sitte på huk . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Gå mer enn to kilometer . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Gå noen hundre meter . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Gå hundre meter . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Vaske eller kle på deg . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. I løpet av de siste 4 ukene, har du hatt noen av de følgende problemer i ditt arbeid eller i andre av dine daglige gjøremål på grunn av din fysiske helse?

	Ja	Nei
a. Du har måttet redusere tiden brukt på arbeid eller på andre gjøremål . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
b. Du har utrettet mindre enn du ønsker . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
c. Du har vært hindret i å utføre visse typer arbeid eller gjøremål . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
d. Du har hatt problemer med å gjennomføre arbeidet eller andre gjøremål (f.eks. fordi det krevde ekstra anstrengelser) . . . . .	<input type="checkbox"/>	<input type="checkbox"/>

27. I løpet av de siste 4 ukene, har du hatt noen av de følgende problemer i ditt arbeid eller i andre av dine daglige gjøremål på grunn av følelsesmessige problemer (som f.eks. å være deprimert eller engstelig)?

	Ja	Nei
a. Du har måttet redusere tiden brukt på arbeid eller på andre gjøremål . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
b. Du har utrettet mindre enn du ønsket . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
c. Du har utført arbeidet eller andre gjøremål mindre grundig enn vanlig . . . . .	<input type="checkbox"/>	<input type="checkbox"/>

+

28. I løpet av de 4 siste ukene, i hvilken grad har din fysiske helse eller følelsesmessige problemer hatt innvirkning på din vanlige sosiale omgang med familie, venner, naboer eller foreninger?

- Ikke i det hele tatt       Mye  
 Litt       Svært mye  
 En del

+

+

29. Hvor sterke kroppslige smerter har du hatt i løpet av de 4 siste ukene?

- Ingen       Moderate  
 Meget svake       Sterke  
 Svake       Meget sterke

30. I løpet av de 4 siste ukene, hvor mye har smerter påvirket ditt vanlige arbeid (gjelder både arbeid utenfor hjemmet og husarbeid)?

- Ikke i det hele tatt       Mye  
 Litt       Svært mye  
 En del

+

+

31. De neste spørsmålene handler om hvordan du har følt deg og hvordan du har hatt de siste 4 ukene. For hvert spørsmål, vennligst velg det svaralternativ som best beskriver hvordan du har hatt det.  
Hvor ofte i løpet av de siste 4 ukene har du:

	Hele tiden	Nesten hele tiden	Mye av tiden	En del av tiden	Litt av tiden	Ikke i det hele tatt
a. Følt deg full av tiltakslyst? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Følt deg veldig nervøs? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Vært så lang nede at ingenting har kunnet muntre deg opp? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Følt deg rolig og harmonisk? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Hatt mye overskudd? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Følt deg nedfor og trist? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Følt deg sliten? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Følt deg glad? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Følt deg trett? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. I løpet av de siste 4 ukene, hvor mye av tiden har dine fysiske eller følelsesmessige problemer påvirket din sosiale omgang (som det å besøke venner, slektninger osv.)?

	Hele tiden	Nesten hele tiden	Mye av tiden	En del av tiden	Litt av tiden	Ikke i det hele tatt
+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. Hvor riktig eller gal er hver av de følgende påstander for deg?

	Helt riktig	Delvis riktig	Vet ikke	Delvis galt	Helt galt
a. Det virker som om jeg blir syk litt lettere enn andre . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Jeg er like frisk som de fleste jeg kjenner . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Jeg tror helsen min forverres . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Jeg har utmerket helse . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



36. Har du noen gang det siste året hatt eksem (rød, kløende, sår og sprukken hud)? (Sett ett kryss for hver linje)

	Ja	Nei	
På hendene? .....	<input type="checkbox"/>	<input type="checkbox"/>	+
I ansiktet? .....	<input type="checkbox"/>	<input type="checkbox"/>	
Andre steder på kroppen? ...	<input type="checkbox"/>	<input type="checkbox"/>	

37. Har du og din partner noen gang i mer enn ett år prøvd å bli gravid uten å lykkes? (Sett ett kryss)

	Ja	Nei	Vet ikke	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+

38. Har du i løpet av de to siste årene opplevd dødsfall blant dine nære pårørende/gode venner?

	Ja	Nei
	<input type="checkbox"/>	<input type="checkbox"/>

39. Har du i løpet av de to siste årene opplevd samlivsbrudd?

	Ja	Nei	
	<input type="checkbox"/>	<input type="checkbox"/>	+

#### Muskel- og skjelettplager

40. Har du hatt plager (smerter, ubehag, nedsatt bevegelighet) noen gang siste 12 måneder fra: (Sett ett kryss for hver linje)

	Aldri	Sjelden	Iblant	Ofte	Svært ofte
Hode .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nakke .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skulder .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Albue .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Håndledd/hender .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Øvre del av rygg .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nedre del av rygg .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hofte .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kne .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ankel/fot .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Sykefravær

+

41. Har du i Sjøforsvaret hatt sykefravær de siste 12 månedene (regn også med egenmeldinger)?

<input type="checkbox"/> Ja	→ Anslå samlet fravær ved å sette ett kryss:	Mindre enn en uke	En til sju uker	Åtte uker til seks måneder	Over seks måneder
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Nei					

42. Har du i løpet av de siste 12 månedene i ditt arbeid i Sjøforsvaret hatt sykefravær på grunn av yrkesskade? (Eksempel: kuttskade, forstuving, sveiseblink)

<input type="checkbox"/> Ja	→ Anslå samlet fravær på grunn av slike skader ved å sette ett kryss:	Mindre enn en uke	En til sju uker	Åtte uker til seks måneder	Over seks måneder
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Nei					

+

43. Har du i løpet av de siste 12 månedene i ditt arbeid i Sjøforsvaret hatt sykefravær på grunn av forhold på arbeidsplassen, men som ikke ble regnet som yrkesskade? (Eksempel: stress, tunge løft, stort arbeidspress, konflikter)

- Ja  $\longrightarrow$  Anslå samlet fravær på grunn av slike forhold ved å sette ett kryss:
- |                          |                          |                            |                          |
|--------------------------|--------------------------|----------------------------|--------------------------|
| Mindre enn en uke        | En til sju uker          | Åtte uker til seks måneder | Over seks måneder        |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> |
- Nei

+

## Barn

44a. Har du eller har du hatt barn du er biologisk mor eller far til?

Nei  $\longrightarrow$  Gå til spørsmål 45a.

Ja  $\longrightarrow$  Gå til spørsmål 44b.

+

+

44b. Hvis ja, ber vi om at du fyller ut følgende rubrikker ved å sette inn årstall for barnets fødsels år og krysse av i de aktuelle rubrikker:

Barnets fødsels år	Gutt/jente	Misdannelse			Kromosomfeil			For tidlig født			Død før fødsel eller innen en uke etter fødsel		Død første leveår	
		Ja	Nei	Vet ikke	Ja	Nei	Vet ikke	Ja	Nei	Vet ikke	Ja	Nei	Ja	Nei
<b>Barn 1</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 2</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 3</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 4</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 5</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 6</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 7</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Barn 8</b> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>	<input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Antall

44c. Antall barn til sammen hvis du har flere enn åtte:

+

+

## Sykdom i familien

45. Har en eller flere av dine foreldre, søsken eller barn hatt kreft?

		Type kreft:	Mor	Far	Søster	Bror	Egne barn
<input type="checkbox"/> Ja	→ Hvis ja, hvilken type(r)? (Sett det antall kryss som er nødvendig.)	Tykk- eller endetarmskreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Nei	↓	Prostatakreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Vet ikke		Eggstokk kreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Brystkreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Livmorkreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Annen type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Vet ikke type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. Har en eller flere av dine foreldre eller søsken hatt hjerteinfarkt (sår på hjertet) eller angina pectoris (hjertekrampe)? (Sett ett kryss)

Ja	Nei	Vet ikke
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. Har en eller flere av dine foreldre eller søsken hatt:  
(Sett ett kryss per linje)

Hjerteinfarkt før de fylte 60 år?

Ja	Nei	Vet ikke
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hjerneslag/hjerneblødning før de fylte 70 år?

+

+

## Alkohol og røykevaner

48a. Bruker du alkohol?

Ja → 48b. Hvis ja, hvor mye drakk du i gjennomsnitt det siste året? Tenk deg et ukentlig gjennomsnitt for året.  
(Sett ett kryss per linje)

	0-1 per uke	2-4 per uke	5-8 per uke	9-14 per uke	15-19 per uke	20+ per uke
<input type="checkbox"/> Nei ↓						
Øl, antall 1/2 liter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vin, antall glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brennevin, antall drinker*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*En hel flaske vodka, whisky, osv. tilsvarer 20 drinker, en hel flaske 60% tilsvarer 30 drinker.

49. Bruker du snus?  
(Sett ett kryss)

Ja, daglig	Ja, men ikke daglig	Nei, men tidligere	Nei, aldri
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

50a. Har du noen gang røykt daglig?

- Ja → 50b. Hvis du har røykt daglig, ber vi deg om å fylle ut for hver aldersgruppe i livet hvor mange sigaretter, piper eller sigarer du i gjennomsnitt røykte per dag i den perioden.

		Antall sigaretter, piper eller sigarer per dag.							
<input type="checkbox"/> Nei (gå til spørsmål 51)	Alder	0	1-4	5-9	10-14	15-19	20-24	25-29	30+
+	15-19 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	20-29 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	30-39 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	40-49 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	50-59 år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	60+ år	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

50c. Hva slags type tobakk røyker eller røykte du mest av? (Sett ett kryss)

- Ferdigsigaretter  
 Rulletobakk  
 Ferdigsigaretter og rulletobakk +  
 Pipetobakk  
 Sigarer

50d. Røyker du i dag?  Ja  Nei (har sluttet)

+

## Fysisk aktivitet

51. Hvordan har din fysiske aktivitet i arbeidstiden vært det siste året?  
Tenk deg et ukentlig gjennomsnitt for året, regn ikke med arbeidsvei. Besvar begge spørsmålene ved å sette ett kryss for hver linje.

	Timer per uke			
	Ingen	Under 1 t.	1-2 t.	3 t. og mer
Lett aktivitet ( <i>ikke svett/andpusten</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hard fysisk aktivitet ( <i>svett/andpusten</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

52. Benytter du deg av muligheten for å trene inntil 2 timer per uke i arbeidstiden? (Sett ett kryss)

Hver uke	Annenhver uke	Hver måned	Sjeldnere/aldri	Kjenner ikke til ordningen	Ikke aktuelt for min stilling
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

53. Hvordan har din fysiske aktivitet i fritiden vært det siste året?  
Tenk deg et ukentlig gjennomsnitt for året. Arbeidsvei regnes som fritid. Besvar begge spørsmålene ved å sette ett kryss for hver linje.

	Timer per uke			
	Ingen	Under 1 t.	1-2 t.	3 t. og mer
Lett aktivitet ( <i>ikke svett/andpusten</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hard fysisk aktivitet ( <i>svett/andpusten</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

## DEL 2

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**Besvarelse av spørreskjemaet Del 2**

På følgende sider vil du finne spørsmål og påstander om arbeidet ditt og organisasjonen som du arbeider i. Formålet er å samle inn informasjon som behøves for å utvikle og forbedre din arbeidssituasjon og arbeidsmiljøet.

Ta den tiden du trenger for å svare. Du avgir svar på de fleste spørsmålene ved å sette ett kryss for det svaralternativet som passer best med din oppfatning.

For eksempel:

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
Må du skynde deg for å få arbeidet ditt gjort?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Jobbkrav**

	+	+	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
12. Er arbeidsbelastningen din ujevn slik at arbeidet hopper seg opp? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Må du arbeide overtid? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Er det nødvendig å arbeide i et høyt tempo? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Har du for mye å gjøre? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Krever arbeidet ditt fysisk utholdenhet? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Krever arbeidet ditt raske avgjørelser? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Er arbeidsoppgavene dine for vanskelige for deg? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Krever arbeidet ditt maksimal oppmerksomhet? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Krever arbeidet ditt bevegelser med høy presisjon? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Forekommer det avbrytelser som forstyrrer arbeidet ditt? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Krever ditt arbeid kompliserte avgjørelser? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Er arbeidet ditt ensformig? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Må du gjenta den samme arbeidsoperasjonen med få minutters mellomrom? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Utfører du arbeidsoppgaver som du trenger mer opplæring for å gjøre? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Er dine spesialkunnskaper og ferdigheter nyttige i arbeidet ditt? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Er arbeidet ditt utfordrende på en positiv måte? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Ser du på arbeidet ditt som meningsfylt? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Krever jobben din at du lærer deg nye kunnskaper og nye ferdigheter? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Er det mulig å ha sosial kontakt med kolleger mens du arbeider? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Har du vært utsatt for trusler eller vold på jobben i løpet av de siste to årene? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Fører feil som du måtte gjøre i ditt arbeid til risiko for personlige skader? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Fører feil som du måtte gjøre i ditt arbeid til risiko for økonomiske tap? .....			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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34. Omfatter ditt arbeid kontakt med kunder eller klienter?

- Nei .....
- Ja, for det meste indirekte kontakt (ved post, telefaks, e-post, osv.) .....  +
- Ja, for det meste direkte kontakt (ansikt til ansikt kontakt eller med telefon) .....
- Ja, like meget direkte og indirekte kontakt. ....

Hvis du krysset av på ett av ja spørsmålene, vær vennlig å besvare følgende spørsmål (35 - 37).

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	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
35. Inneholder arbeidet ditt <u>personlig</u> kontakt med kunder eller klienter? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Må du ta imot og behandle klager fra kunder eller klienter? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Er du fornøyd med din evne til å ha et godt forhold til kundene eller klientene dine? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Rolleforventninger

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	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
38. Er det fastsatt klare mål for din jobb? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Vet du hva som er ditt ansvarsområde? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Vet du nøyaktig hva som forventes av deg i jobben? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Må du gjøre ting som du mener burde vært gjort annerledes? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Får du oppgaver uten tilstrekkelige hjelpemidler og ressurser til å fullføre dem? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Mottar du motstridende forespørsler fra to eller flere personer? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Inneholder jobben din oppgaver som er i strid med dine personlige verdier? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Kontroll i arbeidet

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	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
45. Hvis det finnes flere forskjellige måter å utføre arbeidet ditt på, kan du selv velge hvilken framgangsmåte du skal bruke? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Kan du påvirke mengden av arbeid som blir tildelt deg? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Kan du selv bestemme ditt arbeidstempo? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Kan du selv bestemme når du skal ta pauser? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Kan du selv bestemme lengden på pausene dine? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Kan du selv bestemme arbeidstiden din (fleksitid)? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Kan du påvirke avgjørelser om hvilke personer som du skal samarbeide med? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52. Kan du selv bestemme når du skal ha kontakt med klienter? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. Kan du påvirke beslutninger som er viktige for ditt arbeid? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Forutsigbarhet i arbeidet

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	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
54. Vet du hva slags oppgaver du kan få en måned frem i tiden? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Vet du hvem som blir dine medarbeidere en måned frem i tiden? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56. Vet du hvem som blir din overordnede en måned frem i tiden? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
57. Er det nødvendig å vise andre at du er dyktig og kompetent, for at du skal få fine arbeidsoppgaver eller prosjekter? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58. Opplever du at du har noen eller en organisasjon som verner dine interesser?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. Går det rykter om forandringer på din arbeidsplass? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+					
	Svært lite eller ikke i det hele tatt	Nokså lite	Noe	Nokså meget	Svært meget
60. Vet du hva som kreves for å få en jobb som du synes er attraktiv og fin om to år fra nå? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61. Vet du hva som må læres og hvilke nye ferdigheter som du må tilegne deg, for å ha en jobb som du synes er attraktiv om to år fra nå? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. Er du trygg på at du vil ha en jobb som er like god som den du har nå om to år?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. Foretrekker du utfordringer ved stadig å gå løs på nye oppgaver? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Foretrekker du utfordringer ved å arbeide sammen med nye arbeidskolleger?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65. Foretrekker du utfordringer ved å arbeide på forskjellige steder? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Sosialt samspill

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
72. Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra dine arbeidskolleger?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. Om du trenger det, kan du få støtte og hjelp i ditt arbeid fra din nærmeste sjef?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Om du trenger det, er dine arbeidskolleger villige til å lytte til deg når du har problemer i arbeidet? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75. Om du trenger det, er din nærmeste sjef villig til å lytte til deg når du har problemer i arbeidet? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. Om du trenger det, kan du snakke med dine venner om problemer du har i arbeidet? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. Om du trenger det, kan du snakke med din partner eller en annen nær person om problemer du har i arbeidet? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. Blir dine arbeidsresultater verdsatt av din nærmeste sjef? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. Har du lagt merke til forstyrrende konflikter mellom arbeidskolleger? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+					
	Svært lite eller ikke i det hele tatt	Nokså lite	Noe	Nokså meget	Svært meget
80. Føler du at du kan stole på at venner og familie vil støtte deg hvis det blir vanskelig på jobben? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Mobbing og trakassering

*Mobbing og trakassering (plaging, fornærmelser, negativ særbehandling) er et problem ved noen arbeidsplasser og for noen arbeidstakere. For å kalle noe for mobbing eller trakassering må den negative særbehandlingen forekomme flere ganger over et tidsrom, og personen som er utsatt må ha hatt vanskeligheter med å forsvare seg. Man regner det **ikke** som mobbing eller trakassering hvis to personer som er omtrent like sterke er i konflikt med hverandre eller hvis det bare er snakk om en enkeltstående episode.*

81. Har du lagt merke til om noen er blitt utsatt for mobbing eller trakassering på din arbeidsplass i løpet av de siste seks måneder?	Nei <input type="checkbox"/>	Ja <input type="checkbox"/>	+
82. Hvor mange personer har du sett bli utsatt for mobbing eller trakassering i løpet av de siste seks måneder?	Menn <input type="checkbox"/>	Kvinner <input type="checkbox"/>	
83. Har du selv blitt utsatt for mobbing eller trakassering på arbeidsplassen i løpet av de siste seks måneder?	Nei <input type="checkbox"/>	Ja <input type="checkbox"/>	+

## Lederskap

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
84. Oppmuntrer din nærmeste sjef deg til å delta i viktige avgjørelser? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
85. Oppmuntrer din nærmeste sjef deg til å si fra når du har en annen mening? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
86. Hjelper din nærmeste sjef deg med å utvikle dine ferdigheter? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
87. Prøver din nærmeste sjef å løse problemer med en gang de dukker opp? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

	Svært lite eller ikke i det hele tatt	Nokså lite	Noe	Nokså meget	Svært meget
88. Stoler du på Sjøforsvarsledelsens evne til å ivareta virksomhetens fremtid? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
89. Fordeler din nærmeste sjef arbeidsoppgaver rettferdig og upartisk? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90. Behandler din nærmeste sjef de ansatte rettferdig og upartisk? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
91. Er forholdet mellom deg og din nærmeste sjef en kilde til stress for deg? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## Organisasjonsklima

Hvordan er klimaet i din arbeidsenhet?

+

	Svært lite eller ikke i det hele tatt	Nokså lite	Noe	Nokså meget	Svært meget
92. Konkurransorientert . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
93. Oppmuntrende og støttende . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
94. Mistroisk og mistenksomt . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
95. Avslappet og behagelig . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
96. Stivbeint og regelstyrt . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
97. Tar de ansatte selv initiativ på ditt arbeidssted? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
98. Bli de ansatte oppmuntret til å tenke ut måter for å gjøre tingene bedre på ditt arbeidssted? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99. Er det god nok kommunikasjon i din avdeling? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100. Har du lagt merke til om menn og kvinner blir behandlet ulikt på arbeidsstedet ditt? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
101. Har du lagt merke til om eldre og yngre arbeidstakere blir behandlet ulikt på arbeidsstedet ditt? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
102. Får du belønning for velgjort arbeid i din bedrift/virksomhet? (penger, oppmuntring) . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
103. Bli de ansatte tatt godt vare på ved din bedrift/virksomhet? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
104. Hvor meget er ledelsen i din bedrift/virksomhet opptatt av den ansattes helse og velvære? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Samspill mellom arbeid og privatliv

+	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
105. Hender det at kravene på jobben forstyrrer ditt hjemmeliv og familieliv? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
106. Hender det at krav fra familien eller ektefelle/partner forstyrrer utførelsen av arbeidet ditt? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Engasjement i organisasjonen

De følgende utsagn handler om engasjement i organisasjonen. Med organisasjon menes her bedriften eller virksomheten du arbeider i. Oppgi i hvilken grad du personlig er enig eller uenig i følgende påstander:

	Helt uenig	Delvis uenig	Hverken enig eller uenig	Delvis enig	Helt enig
109. Jeg sier til mine venner at dette er en god organisasjon å arbeide i . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
110. Mine verdier er veldig like organisasjonens verdier . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
111. Denne organisasjonen inspirerer meg virkelig til å yte mitt beste . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Gruppearbeid

	Nei	Ja	+		
112. Er du medlem av en fast arbeidsgruppe eller team? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>			
<i>Hvis du svarte 'ja', vær vennlig å besvar følgende spørsmål (113 - 116).</i>					
	Svært lite eller ikke i det hele tatt	Nokså lite	Noe	Nokså meget	Svært meget
113. Setter du pris på å være medlem av arbeidsgruppen? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+	Meget sjelden eller aldri	Nokså sjelden	Av og til	Nokså ofte	Meget ofte eller alltid
114. Utføres arbeidet i gruppen på en fleksibel måte? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
115. Er gruppen din dyktig til å løse problemer? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
116. Hvor ofte har din arbeidsgruppe møter? . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Arbeidsmotivasjon

Når du skal vurdere en ideell jobb, hvor viktig er følgende forhold:

+	Ikke viktig i det hele tatt	Nokså uviktig	Ganske viktig	Veldig viktig	Helt nødvendig
117. Å utvikle seg personlig gjennom jobben . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
118. Å få god lønn og materielle goder . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
119. At arbeidet er konfliktfritt og velordnet . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
120. Å få opplevelsen av å gjøre noe verdifullt . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
121. At arbeidet er trygt med fast inntekt . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
122. At det fysiske arbeidsmiljøet er fritt for farer og helseskader . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
123. Å kunne bruke min fantasi og kreativitet i arbeidet . . . . .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Etter at du har fylt ut skjemaet, kan du legge det i den vedlagte returkonvolutten og klistre den igjen.  
Vi ber deg sende inn skjemaet selv om ikke alt er fylt ut.  
Porto er betalt.

+ **OBS! Vennligst ikke brett skjemaet!**

**TAKK FOR AT DU HAR TATT DEG TID TIL Å DELTA I UNDERSØKELSEN!**