Work presence and "Sense of coherence" among employees with pain

A cross sectional study

Camilla Jørstad

Master Thesis
Department of Health Sciences
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IV
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Oslo, Oktober 2012

Camilla Jørstad
Abbreviations

ENWHP- European Network for Workplace Health Promotion Organization

Hefa- Health Promotion work-places

H₀ - 0-hypotesis

NAV- The Norwegian Labour and Welfare Administration

NRS- Numeric Rating Scale

NSD- Norwegian Social Science Data Services

OLQ- Orientation to life Questionnaire

PW- Present at work

SD- Standard Deviation

SL- Sick leave

SOC- “Sense of coherence”

SOC-13/SOC-29

SPSS- Statistical Packages for the Social Sciences

VAS- Visual Analog Scale

WHO- World Health Organization
Abstract

**Background:** Pain is common among employees in the Western part of the world. One of the key elements of the Norwegian Governments’ public health and welfare agenda is supporting people to be present at work (work presence). How people with pain manage a situation at work may differ. “Sense of coherence” (SOC) is one theory assumed to reflect a persons capacity to respond to stressful situations, being both cognitive and emotional. The purpose of this study was to investigate whether there is an association between work presence and a person’s capacity to respond to a stressful situation (SOC) among employees with pain. Other factors that could have a relationship to work presence were also considered. Those were pain intensity and demographical variables.

**Material and methods:** This study had a cross sectional design with 1121 employees with pain, both present at work and on sick leave. The participants were recruited from a register at a rehabilitation center in Norway named Friskgården. The period over which the surveys were carried out was from 1st January 2003 until 2nd November 2010. An independent sample t-test and a logistic regression analysis were performed to investigate possible associations between work presence and the variables SOC, pain intensity and demographical variables.

**Results:** No statistical significant association between work presence and SOC among employees with pain was found (p=0.27). Other factors had a significant association to work presence; those were gender, percent position, pain intensity and age (p<0.02).

**Conclusion:** Having pain could be understood as a stressful situation, which we use SOC to manage. Based on the results in this study, SOC was not an essential factor to work presence/sick leave when having pain. There were other factors that had an influence on people referred to Friskgården being present at work or on sick leave, specified that they had pain. These were gender, percent position, pain intensity and age. Different sample compared to previous research may be one explanation why the results are different. This study represented a group mainly with a low socio economic background.

**Keywords:** “Sense of Coherence” (SOC), work presence, sick leave, employees, pain.
Sammendrag

**Bakgrunn:** Smerte er vanlig hos arbeidstakere i den vestlige delen av verden. Et av hovedmålene til den norske regjeringen innenfor helse og velferd er å stimulere til å ha flest mulig i jobb (nærvar). Hvordan personer håndterer en jobsituasjon med smertes kan være ulik. "Opplevelse av sammenheng" (SOC/OAS) er en persons kapasitet til å respondere til en stresset situasjon, både kognitivt og emosjonelt. Formålet med denne studien var å undersøke om det var en sammenheng mellom det å være på jobb med smertes (nærvar) og en persons kapasitet til å respondere til en stresset situasjon (SOC/OAS). Andre faktorer som kan ha en relasjon til nærver ble også undersøkt. Det var smerteintensitet og demografiske variabler.


**Resultater:** Det var ingen statistisk signifikant sammenheng mellom nærver og SOC/OAS hos arbeidstakere med smerte (p=0.27). Andre faktorer som hadde en signifikant sammenheng med nærver var kjønn, stillingsprosent, smerteintensitet og alder (p<0.02).


**Stikkord:** “Sense of Coherence” (SOC)/”Opplevelse av sammenheng” (OAS), nærver, sykefravær, arbeidstakere, smerte.
# Table of Contents

1 Introduction ........................................................................................................................................... 1
   1.1 Background ....................................................................................................................................... 1
   1.2 Purpose and aims of the study ........................................................................................................... 3
      1.2.1 Purpose ......................................................................................................................................... 3
      1.2.2 Aims ............................................................................................................................................. 3
   1.3 The outline of the thesis .................................................................................................................... 4

2 Theory ....................................................................................................................................................... 5
   2.1 “Sense of Coherence” (SOC) and the theoretical frame ................................................................. 6
      2.1.1 Salutogenesis: a continuous variable focusing on health ......................................................... 6
      2.1.2 Definition of “Sense of Coherence” (SOC) ............................................................................... 7
      2.1.3 SOC and other factors ............................................................................................................... 8
      2.1.4 The questionnaire SOC-13 .................................................................................................... 10
      2.1.5 SOC and health ....................................................................................................................... 11
      2.1.6 SOC and pain .......................................................................................................................... 11
   2.2 Health Promotion Theory: related to the Salutogenesis ................................................................. 13
      2.2.1 Health Promotion Theory ....................................................................................................... 13
   2.3 Work presence and sick leave .......................................................................................................... 15
      2.3.1 Work presence ........................................................................................................................ 15
      2.3.2 Sick leave ................................................................................................................................... 16
      2.3.3 Pain and work presence/ sick leave .......................................................................................... 18
   2.4 SOC and work .................................................................................................................................... 20
      2.4.1 SOC among employees with pain ............................................................................................ 24
   2.5 Summary of theoretical background ............................................................................................... 24

3 Materials and methods ........................................................................................................................... 26
   3.1 Study design ....................................................................................................................................... 26
   3.2 Inclusion of people in the study ......................................................................................................... 26
      3.2.1 The process of recruitment ...................................................................................................... 26
      3.2.2 Participants .............................................................................................................................. 26
   3.3 Measurements in the survey ............................................................................................................. 27
      3.3.1 Measurements of work presence and sick leave .................................................................... 28
      3.3.2 Assessment of SOC with SOC-13 .......................................................................................... 28
Overview of tables and figures

Tables

Table 1: Previous studies about “Sense of coherence” (SOC) and other factors
Table 2: Previous studies about “Sense of coherence” (SOC) and pain
Table 3: Previous studies about work and pain
Table 4: Previous studies about “Sense of coherence” (SOC) and work
Table 5: Previous studies about “Sense of coherence” (SOC) and work presence/sick leave
Table 6: Previous studies about “Sense of coherence” (SOC), pain and work presence/sick leave
Table 7: Demographic features for people present at work (PW) and people on sick leave (SL)
Table 8: Pearson correlation coefficients (r) between the variables age, gender, marital status, pain, “Sense of coherence” (SOC), educational level and percent position
Table 9: Age, “Sense of coherence” (SOC) and pain among white- and blue collar workers
Table 10: Gender, marital status, educational level and percent position among white- and blue collar workers
Table 11: Logistic regression analysis showing crude and adjusted odds ratios for work presence for “Sense of coherence” (SOC), gender, type of work, age, percent position and pain.
Table 12: Logistic regression analysis showing crude and adjusted odds ratios for work presence for “Sense of coherence” (SOC), gender, type of work, age (divided into 3), percent position and pain (divided into 3)

Figures

Figure 1: Flow-chart of the inclusion process
Figure 2: Histograms showing “Sense of coherence” (SOC) among people present at work (PW) and people on sick leave (SL)
1 Introduction

1.1 Background

I have worked as a physiotherapist for four years with people who have different pain conditions, mainly with a low socio economic background. The people have been both those on sick leave and those who attend work whilst in pain. Of particular interest is the last group of people. What is it about the people who attend work whilst in pain? Do they have resources people on sick leave do not have? Having a painful condition may be understood as a stressful situation. In this study I want to look at possible associations between employees being at work with pain (work presence) and their capacity to handle a stressful situation. Other factors affecting work presence will also be of interest.

Pain is common among employees. During one month’s period, 75 – 80 % of the Norwegian population will experience pain (4). Both national and international studies show that long-term, non-malignant pain is one of the most function restrictive and costly health problems in the western part of the world (5-7)

The approach to different pain conditions has moved from total rest to activity, and work as part of that activity. In the article “Is work good for your health and Well-being?” Waddell and Burton conclude that long-term sickness can be a serious danger and cause physical, mental and social problems; whilst being at work can be beneficial for both health and well-being to people with common health problems (8). There are economic, social and moral arguments for those able to work, that ‘work is the best form of welfare’ (9). Increasing the employment and supporting people to stay at work is one of the key elements of the Norwegian Government’s public health and welfare agenda. Work presence, instead of sick leave, is in focus, and the concept refers to factors that motivate the employees to attend work (10). The concept “Long-term good health” was formulated by the Swedish Johnny Johnsson in the early 1990ies and relate to employees at work (11). The employees attending work had the same amount of diagnoses, but did not experience their illness/pain as laborious (11).
Most of the studies carried out on people in pain in the western part of the world include people on long-term sick leave, while most of the employees in pain continue working (12;13). However, many factors have an influence on why people stay at work whilst in pain and why people are on sick leave. It can be understood as a complex phenomenon (Wynne-Jones et al 2011). Different perspectives are used to describe the reasons. Health promotion is here a relevant expression. It refers to how employees can have control over and improve their health by social and environmental interventions (14). Thus, factors supporting the employees for being present at work can be related to the workplace and society or the individual itself (Lindberg 2006).

Several studies and reports focusing on factors on the individual level for being present at work or being on sick leave, have been carried out. The characteristics such as gender, age, type of work (15), percent position (16), educational level (15) and how the pain is experienced (17-20) are important factors for being present at work or not.

Pain among employees may be understood as a stressful situation. A situation like this has in previous research tried to be evaluated, and there are a lot of theories. One of the persons trying to expound this is the medical sociologist Aaron Antonovsky. He has developed a model focusing on keys to successful “tension management” for people in a stressful situation, named Salutogenesis (21) (further described in the chapter 2.1). This model concentrates on people’s resources and capacity to create health instead of risks, ill health and disease (pathogenesis)(22). Health promotion focusing on elements which make employees stay present at work is closely related to Salutogenesis. What makes a person managing a stressful situation and stay well (health) is an important aspect in both theories. “Sense of coherence” (SOC), is also a concept developed by Antonovsky (21). There are different questionnaires measuring SOC. One of them is a questionnaire with 13 questions (SOC-13) (described in the chapter 2.1.4). SOC is defined as a person’s capacity to respond to stressful situations, and reflects a person’s long-lasting view of life, with both cognitive and affective components (21). Previous studies among employees attending work shows that people with high SOC manage stress better than people with low SOC (23;24).
1.2 Purpose and aims of the study

1.2.1 Purpose
The purpose of this thesis was to study a possible association between work presence and the capacity of employees with pain to respond to a stressful situation (SOC). Having pain can be experienced as stressful, and therefore SOC may or may not have an effect on the employees being present at work or not. SOC was measured through the questionnaire SOC-13. In addition associations between work presence and the variables pain intensity and demography were investigated.

Previous studies have discovered coherence between work presence and SOC among the general population in Sweden (25). The literature however shows divergent results about the relationship between SOC and work presence/sick leave among employees in pain (26;27). The samples in the studies mentioned were primary care patients (26) and male farmers (27) in Sweden. No previous studies looking at the association between work presence and SOC among people with pain in a sample represented of Norwegian employees mainly with low socio economic background found in a systematic search mainly on PubMed. Low socio economic background in this study is based on educational level, marital status and type of work, in line with World Health Organization (WHO) (28). In general, this group has not been studied as much as the general population, even though this group has less chance of attending work while having problems (report higher sick leave) (16). In general, this group reports more pain and poorer health (29).

1.2.2 Aims
The specific aim of this study was to look at the relationship between work presence/sick leave and SOC among employees with self-reported pain. Firstly, the association between work presence and SOC among employees in pain were investigated. Then, associations between other variables that may have an influence on work presence among employees with pain, in addition to SOC, were explored. Pain intensity and demographical variables, such as age, gender, marital status, percent position, educational level and type of work, were considered.
Research questions

The research questions were:

**Aim 1:**

*Is there an association between work presence and “Sense of Coherence” (SOC) among employees in pain?*

**Aim 2:**

*To what extent is work presence associated with SOC, pain intensity and demographical variables in a multivariable model among employees in pain?*

0-hypotesis

**H₀:** There is no association between work presence and “Sense of coherence” (SOC) among employees with pain.

**H₁:** There are no associations between SOC, pain intensity and demographical variables in a multivariable model among employees with pain.

### 1.3 The outline of the thesis

Chapter 2 describes the theory essential for this study. The concepts of SOC, pain and work presence/sick leave are defined. Chapter 3 describes the material and methods of this study. Here the reader gets to know for instance study design, sample, statistical analysis and ethical considerations. In chapter 4 the results of this study is presented. In chapter 5 the results are discussed based on the aim of the study, and proposal to further research is provided, while chapter 6 gives a summary of the study with a conclusion.
The theory in this thesis is mainly based on literature from the database Pubmed. Other sources of research include Cochrane, Pedro, Cinahl and Psycinfo.

The terms used were:

“Sense of Coherence”, work, pain, sick leave, work presence, employees, work ability, presenteeism, absenteeism, health and health promotion.

The search for literature was limited to “Sense of Coherence” among employees, and their relationship to pain, work presence and sick leave. Only articles in English, Norwegian and Swedish and those available in full text were included. Articles with reduced quality based on criteria’s from the Norwegian Knowledge Center (30) and specific intervention studies were excluded. Also single searches based on references from relevant articles were made. Different books relating to the theme were used and the research ended in Oktober 2012.

This chapter will have three major topics: “Sense of Coherence”, “Health promotion theory”, and “Work presence and sick leave”. First, SOC will be seen in a wider theoretical frame named salutogenesis. Then, a definition of SOC and the questionnaire SOC-13 will be presented. Then, pain will be defined and literature related to SOC and pain and other factors will be provided. Further, health promotion at work, related to salutogenesis, will be discussed. Subsequently, work presence and sick leave will be described, and how pain, SOC and other factors are related to work presence and sick leave. In the end a summary of the theory will be presented.
2.1 “Sense of Coherence” (SOC) and the theoretical frame

Thousands upon thousands of people have studied illness. Almost none have studied health.

Adelle Davis

2.1.1 Salutogenesis: a continuous variable focusing on health

Aaron Antonovsky, an American-Israeli medical sociologist, presented in 1979 a new perspective on health, within mental and physical well-being, named Salutogenisis (21). After studying women who had been in a concentration camp during World War II, he noticed that, surprisingly, some women were reasonably healthy and happy, had families and friends, and were involved in community activities. This interest in the keys to successful “tension management” for people in a stressful situation started then. Salutogenisis is a model focusing on people’s resources and capacity to create health instead of focus on risks, ill health and disease (pathogenesis) (22). The key concept is why some people despite stressful situations stay well (health), in contrast to those who focus on obstacles and deficits and what makes people sick (disease) (21). Antonovsky understood health and unhealth/disease on a multidimensional continuum. As long as we are alive we are partly healthy and partly sick. We are therefore somewhere on the health- disease continuum (21). According to Antonovsky in salutogenesis the focus was where a person, on a given moment, finds oneself on this continuum. He used the term people instead of patients, because health or unhealth is a continuum always with degrees of health and disease, and not a bacteria causing a certain disease (21). Antonovsky was fascinated by what makes people move on the continuum, and especially towards the healthy end. Sense of coherence, SOC, is a key factor for making a movement on the continuum possible (31). The question leading Antonovsky to SOC was why resources such as wealth, ego, strength, cultural stability and social support promoted health and what they had in common (21).
2.1.2 Definition of “Sense of Coherence” (SOC)

“Sense of Coherence” (SOC) is a person’s capacity to respond to stressful situations, and reflects a person’s long-lasting view of life, with both cognitive and affective components (21). It is an essential component in the basic personality structure of an individual and at the same time an element of a subculture, culture or historical period. SOC being both stable and dynamic has been an issue Antonovsky has thoroughly discussed (31). SOC is a personal way of thinking, being and acting, with an inner trust, which leads people to use the resources at their disposal (22). It consists of the three elements comprehensibility, manageability and meaningfulness (31).

The original definition by Antonovsky;

“A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement” (31), s.19.

The first component, comprehensibility, refers to if the person finds the internal and external stimuli (for example death, war or failure) as predictable (31). It is the cognitive element and the core of SOC. The information will be perceived either as ordered, consistent, structured, and clear, or as chaotic, disordered, random, accidental or inexplicable. Earlier experience is essential. Previous experiences in managing demands may influence how new demands are handled, either in a positive or negative way (31).

Manageability, the second component, refers to if the person has resources to meet the demands posed by the stimuli that bombard them (31). Resources can be under one’s own control or controlled by others, as one’s spouse, friends, colleagues, God, history, the party leader or the physician. The category others will be someone whom one trust and can count on (31).

Meaningfulness, the third component, is the motivational part and refers to the extent to which one feels that life makes sense emotionally and that problems and demands are worth
SOC is, as mentioned above, a stable part of the individual and a life-long orientation (21). At the same time, SOC is also dynamic, reinforced and modified in childhood and throughout one’s life (21). A particular experience or a specific situation can have an influence on SOC. SOC understood as both being stable and dynamic at the same time can have an influence on SOC. SOC understood as both being stable and dynamic at the same time can be associated with the real life flexibility and seen as a strong side in this theory.

Antonovsky differentiated between strong and weak SOC (31). Change in structural situation, marital status, occupation, place of residence, can lead to significant modifications in one’s SOC. Strong or weak SOC plays a significant role in determining one’s choice of remaining or changing one’s structural situation. People with strong SOC tend to choose areas in life that reinforce their level of SOC. They are able to grasp reality and believe that everything will work out as reasonably as expected. People with low SOC gravitate towards an area that weakens SOC and may choose to avoid situations with “danger”. In other words, people tend to choose the areas that maintain their level of SOC (31).

### 2.1.3 SOC and other factors

Earlier research illustrates other factors that may have an influence on SOC. That is for example, age and gender. When we get older, SOC becomes more stable, especially after turning 30 (1). SOC can also be different for men and women (25). SOC is also associated with psycho-emotional elements, such as the quality of relationship with the partner, social support (32;33), quality of work, and childhood living conditions (33;34).

SOC also relates to daily activity, such as physical exercise and social activities (35). SOC has also an association to the three dimensions of health: body function, activity and participation (36).

Previous studies differ in the results about the relationship between SOC and healthy lifestyle choices. One study found a relationship between SOC and healthy lifestyle choices (37).
Another showed no association between SOC and lifestyle, such as physical activity, smoking and drinking (38).

**Table 1:** Previous studies about “Sense of coherence” (SOC) and other factors.

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Design and measurement (SOC)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland &amp; UK</td>
<td>Feldt et al 2006</td>
<td>n=21 101</td>
<td>Longitudinal cohort study. SOC-29.</td>
<td>SOC was more stable among subjects over 30 years than among younger adults.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Nilsson et al 2000</td>
<td>n=1517</td>
<td>Postal survey of a population-based study</td>
<td>Relationship between low SOC, poor perceived health, low social and emotional support</td>
</tr>
<tr>
<td>Finland</td>
<td>Volanen et al 2004</td>
<td>n=3216 Age: 25-64</td>
<td>* SOC-13.</td>
<td>Psycho-emotional resources were strongly associated with SOC, rather than socio-economic circumstances. These resources were the quality of relationship with their partner, social support, quality of work, and childhood living conditions. Living without a partner and having low SOC was stronger among men than women, although a small gender difference.</td>
</tr>
<tr>
<td>Norway</td>
<td>Søderhamn &amp; Søderhamn 2004</td>
<td>n=160 (♂: 70, ♀: 90) Age: 74.2 (mean) Home-dwelling older people</td>
<td>* SOC-29.</td>
<td>SOC, disease and being single were predictors for health.</td>
</tr>
<tr>
<td>Sweden &amp; USA</td>
<td>Schult et al 2000</td>
<td>n=84 (♂: 18, ♀: 66) Age: 43 (mean) Persons with chronic pain</td>
<td>A prospective correlative study. SOC-13. Interview.</td>
<td>A weak significant relationship between SOC and the performance of daily occupations, such as physical exercise, climbing stairs, social activities and doing the laundry.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Erlandsson et al 2011</td>
<td>n=300 (♂: 50, ♀: 250) Age:</td>
<td>A cross-sectional</td>
<td>Marital status or cohabiting doubled the likelihood for having</td>
</tr>
<tr>
<td>Country</td>
<td>Study</td>
<td>Sample Size</td>
<td>Design</td>
<td>Findings</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>-------------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>UK</td>
<td>Wainwright et al 2007</td>
<td>n=18 287 (♂: 7863, ♀: 10 424)</td>
<td>A cross-sectional study.</td>
<td>No relationship between SOC and lifestyle, such as physical activity, smoking and drinking, were found.</td>
</tr>
<tr>
<td>Canada</td>
<td>Wolff &amp; Ratner 1999</td>
<td>n=20.6 mill (♀: 51.3 %)</td>
<td>A multistage stratified cluster design.</td>
<td>SOC was associated with healthy lifestyle choices independently of social class and educational level.</td>
</tr>
</tbody>
</table>

*Were not found in the article.

### 2.1.4 The questionnaire SOC-13

SOC can be measured with the questionnaire SOC-13. It has 13 questions and is a shorter version of the original questionnaire measuring SOC with 29 questions (SOC -29). Both questionnaires were produced by Aaron Antonovsky and are called Orientation to Life Questionnaire (OLQ) (31). The three themes of SOC; comprehensibility, manageability and meaningfulness are represented in the questionnaire. Four questions measure the manageability dimension, four questions meaningfulness and five questions comprehensibility (39). Beside SOC-29 and SOC-13, there are at least 15 other instruments measuring SOC (40).

Antonovsky expressed that it was important that the sum of the scale was not divided into high and low SOC (31). Consequently, he never defined the level of normal SOC. He also wanted the scale to be measured as a whole, and not divided into the three elements; comprehensibility, manageability and meaningfulness (31).

SOC -29 and SOC -13 have been used in scientific disciplines like medicine/psychiatry/psychology, public health/health science, nursing, sociology, social work, and pedagogy (40).
2.1.5 SOC and health

SOC is one component of the salutogenesis, but not the whole explanation of health. Through salutogenesis we can understand health as a subjective and positive way of viewing life and SOC is the capacity to use the resources available to improve health. SOC explains why some people in stressful situations stay well. Various researchers have tried to identify the link between health and SOC. In previous studies there has been found a correlation between SOC and health (32;41;42), and especially mental health (42).

2.1.6 SOC and pain

Definition of pain

Pain is defined by International association for study of pain (IASP), as

“an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (43).

The experience of pain will be subjective and related to earlier incidents in life (43).

There has been a change from understanding pain as a biological process, to understand pain as a biopsychosocial phenomenon. Three categories of psychosocial variables, in particular, are important in this model: cognitions (thoughts, beliefs, appraisals), coping responses, and social environment variables (44). Social environmental factors were solicitous responses of a significant other (family member or friend) and perceived social support (44). Cognitions that are negative and unrealistic. Examples such as “the pain is awful and I feel that it overwhelms me” or “I can’t stand this”, have been shown to be associated with higher levels of pain severity and poor adjustment to chronic pain in numerous studies across a wide variety of people with pain (45).

In other studies pain related beliefs, such as fear avoidance and the believe in managing situation (self-efficacy), seem to be more important determinants for disability than pain intensity (46). Pain related fear can lead to activity avoidance (47).

Antonovsky also discussed the concept of pain. He explained pain as an extremely complex, little-understood phenomenon, and universally known as a ”personal, private sensation hurt” (21). According to Antonovsky, pain consisted of both individual and cultural elements.
Distinctions in vocabulary will be an example of differences in cultures. Individual elements can be associated with health disturbance through a pathological process, through negative sensations and emotions, such as feeling pain when someone dies, losing a tennis match and so on. Antonovsky underscored the importance of pain as subjective and self-reported. He also discussed if there is a difference in the health behavior of people with pain (21).

Different studies show that pain experience has two components; pain intensity and pain affect (48). First-mentioned is how much it hurts, and the second component is the degree of emotional arousal or changes in action readiness caused by the sensory experience of pain. Measures of pain affect have been shown to be statistically distinct from measuring pain intensity, but they are not independent (48).

Others define pain intensity as influenced by the meaning of the pain for the person and its expected duration (49). It is also discussed that pain rarely is caused by psychological and emotional factors but is associated with effects such as fear, anxiety and depression (50). Pain is subjective and the person need to be understood and believed (50).

**Previous studies of SOC and pain**

In previous studies SOC has been seen as a predictor of pain intensity, especially after surgery (51-53). High SOC were related to low pain intensity. Age and educational level were also predictors for low pain intensity (51). In two of the studies there are few participants (n=73 and n=85), but they have strong study designs. Stramrood et al had 428 participants, but it was a cross-sectional study with only women (53).

**Table 2:** Previous studies about “Sense of coherence” (SOC) and pain.

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Design and measurement (SOC)</th>
<th>Result</th>
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<tbody>
<tr>
<td>Country</td>
<td>Authors</td>
<td>Sample Size</td>
<td>Study Details</td>
<td>Before and after opr. SOC-13</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sweden &amp; Finland</td>
<td>Santavirta et al 1996</td>
<td>n=85 (♂: 39, ♂: 52) (Age: 35 (mean)). Patients followed after an anterior low-back fusion, chronically painful low-back conditions.</td>
<td>Before and after opr. SOC-13</td>
<td>Good predictors for the outcome of low-back surgery were the duration of pain and SOC. SOC especially for patients between 35-50 years old.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Stramrood et al 2011</td>
<td>n=428 (♀) (Age: 17-45). 2 and 6 months after childbirth.</td>
<td>A multi-center cross-sectional study.</td>
<td>Low SOC was associated with high pain intensity and posttraumatic stress symptoms.</td>
</tr>
</tbody>
</table>

The majority of the previous studies within SOC and pain are mainly related to specific diagnosis or interventions, such as the three described above (table 1) and others such as: by pass surgery (54) and type 2 diabetes (55).

### 2.2 Health Promotion Theory: related to the Salutogenesis

#### 2.2.1 Health Promotion Theory

Salutogenesis is, as mentioned above, related to the Health Promotion Development by focusing on the factors strengthening health instead of risk factors (56;56;57). Both theories engage in goal-orientated behavior (21) and understand health as a continuum.

The focus on health promotion started after World War II (56), and the establishment of the World Health Organization (WHO) in 1948 was part of the Health promotion and Human Right influence in the world at that time (28). In the Ottawa charter (1986) the content of WHO’s health promotion program was defined (58).
Health promotion is defined by WHO as:

“...the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behavior towards a wide range of social and environmental interventions.”(14)

**Health promotion at work**

The workplace is an area for health promotion and it has been in focus both nationally and internationally for the last fifteen years (57). After the establishment of European Workplace Health Promotion (ENWHP) in 1996 the organization has been a in the lead for developing health promotion at work (59). The aim of ENWHP is to improve health and well-being of people at work through efforts by employers, employees and the society. This can be achieved through a combination of improving the work organization and the working environment, promoting active participation and encouraging personal development (60). In 1997 a declaration was adopted by all members of the ENWHP at the network meeting in Luxembourg. The declaration was later updated in 2005. By signing “the Luxembourg declaration” companies assure that their codes of conduct and guidelines should view employees not only as cost factors but as important success factors. The company culture and management policies should include the participation of the employees. At the same time it encourages employees to become responsible and focuses on their personal skills, control of work and social support. The employees’ health is important, both safety factors and health potentials (60).

"The Declaration of Lillestrøm", developed in 2002, is an important document for health promotion in Norway (61). Health promotion workplaces, called Hefa in Norway, was established. The focus should be on the employees needs, resources and potential, and be developed thorough participative processes (61). Workplaces in Norway also have an obligation to support health promotion and an including work life. That is based on the law controlling work from 1.1. 2006 valid at present time (Working Environment Act) (62).
2.3 Work presence and sick leave

**Work presence** is a relatively new term in the research of work in Norway. The definition of work presence is people attending work, either if they are sick or not (63). The idea is based on factors that motivate the employees to attend work (10).

**Sick leave** is paid absence from work allowed because of sickness (63).

The previous research is mainly focusing on why people are on sick leave and how to prevent this (10). Different explanations have been developed.

The literature differs between positive and negative factors in work presence and sick leave with a given health condition (63). **Positive factors of work presence** are factors related to the company and work making the employee wanting to go to work, such as working tasks and work environment that are stimulating. **Negative factors of work presence** are reasons for attending work, such as fear of losing the job and the opinion among the colleges of being on sick leave. **Positive factors of sick leave** are different factors outside the job that can lead to sick leave, such as taking care of own health or taking care of the family. **Negative factors of sick leave** are different elements related to the company that can promote or prevent the employee attending work or not, such as conflict with the leader or physical strains related to the working environment (63).

2.3.1 Work presence

**“The work ability continuum”**

A model, called the “work ability continuum” is trying to make a visual image of factors effecting work ability (64), which can be understood as work presence. The salutogenetic way of understanding health as a continuum, by Antonovsky, has inspired Per Lindberg to develop this model. The model illustrates how the work ability of an employee in his or her context is a dynamic interplay between supportive factors promoting excellent work ability and counteracting, destructive factors. During his or her working life the individual will move up and down the “work ability continuum”. Somewhere along there is a limit where the individual experiences too reduced an ability to work and as a consequence will take out sick leave. That point is personal and encompasses a wide range of factors as somatic, psychiatric
and social response to disease, motivation, attitudes, obligations towards work and family, flexibility at work, and construction of the health insurance and benefits involved. Some factors are related to the individual itself, while others are related to the workplace and society. In one end of the scale there is “excellent work ability”, and in the other end “work inability” (64). The first one can be related to the term work presence and the last mentioned as work absence.

“Long-term good health”

The concept “Long-term good health” is related to employees at work, and was formulated by the Swedish Johnny Johnsson in the early 1990ies (11). Surprisingly only a few studies had been done on the healthy human being and their working life until that point, sick people had been in the spotlight. Johnsson et al looked at employees that had not been ill/sick for the last two years and employed for the last three years. Characteristics of the people with “Long-term good health” was welfare at work. They had the same amount of diagnosis, but did not experience the illness/pain as laborious. Other characteristics of the people were that they were less depressed, had less sleeping problems, less worried about their health, but sought medical advice through the occupational health service more often, were optimistic about the future, did physical exercise more often than the control group and felt a sense of belonging to their workplace (11).

A Swedish study investigates, which work- and private life related factors that are associated with long-term good health (65). Long-term good health was operationalized as low sickness absenteeism and low sickness presenteeism during a 2-year period. Health advantage of sufficient resources and experience of good quality was lower among men. The same pattern appears for support from the chief. Variables with health effects were often asymmetric. They were related to health as well as to ill health. A recommendation is that health psychological variables should be included in further research, and as an opposite to the dominance of variables developed in a research paradigm focused on illness and disease (65).

2.3.2 Sick leave

The sick leave reported from doctors in Norway was 5.7 % at the beginning of 2012. A report from SINTEF showed that the self-reported sick leave has been almost the same since 1970ies about 1 %. The variation in excess of this is from the reported sick leave from doctors (66).
Still the Norwegian Government considers this as a problem (15), especially since 10 % of the employees are responsible for 82 % of the sick leave (12). The authorities are trying to reduce the amount of sick leave, which means increasing employees present at work.

Reasons for sick leave

The most frequent reason for sick leave is subjective health complaints, like muscle pain, tiredness and mood changes (67). This is a cost for the employee and the employers (18). Sick-listing process is complex, and the determinants are mostly non-medical (68). The burden of pain on sickness absence dependent on the duration of the absence (69), and the longer an employee is off work, the lower the chances of ever returning to work again (8).

More women than men report sick (70-72). Different explanations of this gender difference are described in the literature. One important explanation is sick leave during pregnancy. 24 % of the total difference in gender in sick leave is registered during pregnancy (70). For the age group 20-39 years sick leave during pregnancy counts for almost half of the gender differences (70).

Thus, other reasons for sick leave among women have been discussed in previous studies. One hypothesis is that many women combine work and taking care of the children (73). In that way women are working double, and that may increase the risk for being on sick leave.

In the beginning of 2012, sick leave was more common among the older employees (72). Employees at the age 15-30 years report less sick leave (4 %), than both employees at the age 31-45 years (5,7 %) and 46-70 years (6,2 %) (72).

Earlier reports show a correlation between type of work and sick leave (12); (15). Especially high strain jobs increase the odds for sick leave, among both men and women (73).

Educational level also seems to correlate with sick leave (12)(15). People with a higher educational level had 30 % higher participation in the working life in Norway compared to people with lower secondary school as highest level of education (15).

Another factor that seems to have an association to sick leave among employees in Norway is percent position (16). In a study from the capital of Norway, Oslo, employees working between 50-99 % had 9 % sick leave, and employees working less than 50 % had 4,7 % sick leave (16).
Musculoskeletal pain is the most common reason for being on sick leave in Norway, and the chances for being on sick leave increases with the number of areas of pain (4). There are mostly women in higher age groups reporting musculoskeletal pain (4). The number of areas of pain also seems to correlate with sick leave in a Norwegian study (74). On the other hand previous studies show that the localization of pain has no effect on sick leave (74).

### 2.3.3 Pain and work presence/ sick leave

Factors that have an influence on people at work with pain are many, and can be understood as a complex phenomenon (18). In earlier research “presenteeism” has been used to describe employees at work with pain. “Presenteeism” refers to employees who are working despite of their health problems, though not as productive as usual because of their health problems (75). The term is mostly attributed to common health problems such as headache, cold/flu, asthma, allergies, fatigue/depression, stress, digestive problems, and musculoskeletal disorders. “Presenteeism” is primarily a business rather than a health care concern. It is mainly found in the occupational and business literature rather than the clinical literature, and focuses on health-related productivity losses. The consideration is that the health problem is not caused by work and being at work will not make it worse. Focus is on the economic situation and the emphasis is generally on recognizing and managing the problem in the workplace, rather than arguing for keeping workers off work (75).

A former Australian study showed that pain had a larger impact on work performance than previously observed (20). This Australian study had a sample from the general population. The conclusion was that chronic pain had a larger impact on work performance than previously recognized, related to reduced performance while working with pain. Significant proportions were able to work with pain, but pain was a strong significant predictor of reduced work ability and well-being (20).

The literature shows that pain experience is an important factor for being both on sick leave or be present at work (17-20). Pain experience can be understood as both pain intensity, how much it hurts, and pain affect, the emotional aspect of pain (see previous definition chapter 2.1.6). Pain severity were in a Norwegian study not found to be significant predictors of work ability, but pain experience on the other hand, did have an effect on work ability (19). The sample was from Friskgården, a rehabilitation center. Other predicting factors for work ability
found in this Norwegian study were age, sleeplessness, cognitive function, overall health, and anxiety (19).

In earlier research, cognitive factors and anxiety, in addition to pain experience, were found to be useful predictors of work ability (17). The findings do suggest that cognitive factors may play an important role in work ability and should be explored in future studies (17).

Another Finnish study among employees showed that the burden of pain on sickness absence also dependent on the duration of the absence (69). The Finnish study also looked at socio-economic factors in acute, chronic and disabling chronic pain among employees (76;77). Chronic pain were more common in older age groups among both genders. Among women, those with secondary or primary education were more likely to report chronic or disabling chronic pain than those with higher education and semi-professionals. Routine non-manual employees and manual workers were more likely to report disabling chronic pain than managers. Separated/divorced or widowed men were more likely to report acute pain than married men, and manual workers were more likely to report chronic pain than managers. Age, lower educational level and labour class appear to be at excess risk for chronic pain, especially for disabling chronic pain (76).

Table 3: Previous studies about work and pain.

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Design</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>Ursin &amp; Eriksen 2007</td>
<td>*</td>
<td>*</td>
<td>The most common health complaints are subjective health complaints like muscle pain, tiredness and mood changes. These conditions are the most frequent reason for sick leave and disability.</td>
</tr>
<tr>
<td>Norway</td>
<td>Werner &amp; Cote 2009</td>
<td>312 papers</td>
<td>Review</td>
<td>Sick-listing process for LBP is complex, and the determinants are mostly non-medical. Physical working conditions are of less importance than social support, job control and demands. The economic awards in sickness absence and the acceptance of being sick listed seem to be of importance in the decision to claim sick leave.</td>
</tr>
<tr>
<td>Norway &amp; USA</td>
<td>Tveito et al 2010</td>
<td>n=38. Age: 18-36. Low Back Pain.</td>
<td>Qualitative observation study</td>
<td>Main themes: knowing your work setting, talking about pain, being prepared for a bad day, thoughts and emotions, keeping moving and finding leeway.</td>
</tr>
<tr>
<td>Country</td>
<td>Author(s)</td>
<td>Sample Size</td>
<td>Methodology</td>
<td>Findings</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>UK</td>
<td>Waddell &amp; Burton</td>
<td>153 papers. Non-specific low back pain.</td>
<td>Systematic review</td>
<td>Most workers continue to work or return to work while symptoms are still present. The longer a worker is off work with LBP, the lower their chances of ever returning to work. 4-12 weeks off gives 10-40 % risk of being off work after 1 year. After 1-2 years absence it is unlikely they will return to work at all.</td>
</tr>
<tr>
<td>UK</td>
<td>Wynne-Jones &amp; Main 2011</td>
<td>*</td>
<td>Review</td>
<td>Pain is one of the leading causes of absenteeism and presenteeism with related cost for both the employees and employers.</td>
</tr>
<tr>
<td>Finland</td>
<td>Saastamoinen et al 2008</td>
<td>n=8960 (♂:1792, ♀:7168). Age: 40-60.</td>
<td>Longitudinal study</td>
<td>The burden of pain on sickness absence dependent on the duration of the absence. Prevention of pain problems is vital for reducing sickness absence.</td>
</tr>
<tr>
<td>Norway</td>
<td>Lillefjell et al 2006</td>
<td>n=143 (♂:37, ♀:106). Age: 20-67</td>
<td>Her</td>
<td>Factors as pain experience, age, sleeplessness, cognitive function, overall health, and anxiety were the strongest predictors of work ability.</td>
</tr>
<tr>
<td>USA</td>
<td>Geisser 2003</td>
<td>*</td>
<td>Systematic review</td>
<td>Pain experience, cognitive factors and anxiety were found to be useful predictors of work ability.</td>
</tr>
<tr>
<td>Australia</td>
<td>Blyth et al 2003</td>
<td>n=468 (♂:175, ♀:293) Age: 49.8 (mean)</td>
<td>A population-based telephone survey</td>
<td>Chronic pain had a larger impact on work performance than previously observed.</td>
</tr>
</tbody>
</table>

*Were not found in the article.

## 2.4 SOC and work

A literature search at Pubmed, Psycinfo, Pedro and Cinahl indicates that employees with pain, and their SOC, have been involved only in a few studies. At the same time, according to the databases mentioned above, there has been a lot of research done related to SOC and work in general (table 4).
Table 4: Previous studies about “Sense of coherence” (SOC) and work.

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Design and measurement (SOC)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>Pahkin et al 2011</td>
<td>n=4279 (♂:3225, ♀:1054) Age*</td>
<td>Prospective cohort study. SOC-13</td>
<td>SOC relation to work conditions and social network. A stronger SOC decreased the adverse effect of negative appraisal of change on psychiatric events.</td>
</tr>
<tr>
<td>Finland</td>
<td>Leino-Loison et al 2004</td>
<td>n=183 (♂:6, ♀:177) Age: 21-62</td>
<td>A descriptive and correlational design. SOC-13</td>
<td>Low SOC is found among unemployed nurses</td>
</tr>
<tr>
<td>Sweden</td>
<td>Hansen et al 2004</td>
<td>n=121 (♂:46, ♀:89) Age: 18-64 On sick-leave</td>
<td>*SOC-13.</td>
<td>High SOC seems to have an influence on peoples return to work.</td>
</tr>
<tr>
<td>Location</td>
<td>Authors and Year</td>
<td>Sample Size Gender and Age Range</td>
<td>Study Design</td>
<td>Findings</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
<td>----------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sweden</td>
<td>Krantz &amp; Østergren 2004</td>
<td>n=397 (♀) Age: 40-50</td>
<td>A cross-sectional study. SOC-29.</td>
<td>A relationship between SOC and work conditions and social network was found.</td>
</tr>
<tr>
<td>Germany</td>
<td>Høge &amp; Bussing 2004</td>
<td>n=205 (♂:44, ♀:161) Age: 34-1 (mean) Nurses, physicians, medical technicians</td>
<td>A cross-sectional study. SOC-13.</td>
<td>A relationship between SOC and work stressors and strain was found. SOC is connected to job position.</td>
</tr>
<tr>
<td>Finland</td>
<td>Kivimäki et al 1998</td>
<td>n=750 (♂) Age: 25-65 Managers in industrial companies in Finland</td>
<td>A cross-sectional study. SOC-13.</td>
<td>A relationship between SOC and work conditions and social network was found.</td>
</tr>
<tr>
<td>South Africa/Netherlands</td>
<td>Fourie et al 2008</td>
<td>n=165 (♂:36, ♀:129) Age: 20-60 Non professional counsellors in South African banks</td>
<td>A cross-sectional study. SOC-13</td>
<td>SOC was a positive predictor of perceived low job demands and high availability of job resources and work wellness. Non-professional counsellors with a stronger SOC experienced more work wellness.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Erlandsson et al 2011</td>
<td>n=300 (♂:50, ♀:250) Age: 25-66 Employees at a large public organization in Sweden</td>
<td>A cross-sectional study. SOC-13</td>
<td>Marital status or cohabiting doubled the likelihood for having high SOC. No differences in gender. Distinct relationship between SOC and occupational value and subjective health were also found.</td>
</tr>
</tbody>
</table>
A strong SOC seems to be a protective factor for mental health when the employee experiences negative changes during an organizational merger (24). Low SOC is found among unemployed nurses (78) and among elderly workers with poor psychological well-being (79). High SOC seem to have an influence on peoples return to work after being on sick leave (80;81). A relationship is also found between SOC and work attitudes (82), work and well-being (79;83;84), work conditions and social network (85), occupational value (86), and work stressors and strain (23;24;87) and bullying (88).

However, knowing that SOC is related to different aspects at work, there has also been found a relationship between SOC and sick leave (table 5). A low level of SOC was associated to sick leave in two Swedish studies (25;89), the first mentioned included only for women (25). Hedov et al was representing parents of children with Down’s syndrome (89). Engstrøm & Janson had many participants (n=3123), and covered both women and men in different age groups (18-64) (25). Both studies are cross-sectional, using different SOC scales (SOC-13 and SOC-29) (25;89).

Table 5: Previous studies about “Sense of coherence” (SOC) and work presence/sick leave.
2.4.1 SOC among employees with pain

As already mentioned, only a small number of studies have looked at the relationship between work presence and sickness absence and SOC among people with pain. Two Swedish studies were found with divergent results. Atroshi et al had only 189 participants from primary care, both men and women from 17 to 64 years with musculoskeletal pain (26). The study had a cross-sectional design and used SOC-29 scale. The result illustrated an association between work presence/sick leave and SOC. Sick listed patients had lower SOC than non-sick listed patients (26). Another study found the total opposite. SOC were not associated with sick leave (27). This study represents only male farmers (n=836) from 40 to 60 years, but have a strong design (cohort study) (27).

Table 6: Previous studies about “Sense of coherence” (SOC), pain and work presence/sick leave.

<table>
<thead>
<tr>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Design and measurement (SOC)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>Holmberg &amp; Thelin 2010</td>
<td>n= 836 (♂) Age: 40-60 All farmers</td>
<td>A cohort study. SOC-29.</td>
<td>SOC were not associated with sick leave. Age, educational level, physical workload or marital status was either associated to sick leave.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Atroshi et al 2002</td>
<td>n=189 (♂:71, ♀:109) Age: 17-64 Persons with musculoskeletal pain</td>
<td>A cross-sectional study. SOC-29.</td>
<td>Sick listed patients had lower SOC than non-sick listed patients. No correlation between SOC and age, no gender differences. Long-term sick leave was common among primary care patients with musculoskeletal pain.</td>
</tr>
</tbody>
</table>

2.5 Summary of theoretical background

SOC is a person’s capacity to respond to stressful situations and refers to comprehensibility, manageability and meaningfulness (31). The theoretical base for SOC is salutogenesis, where health is understood as a continuum and a person can be partly healthy and partly sick. The opposite is a dichotomy understanding of health and disease (pathogenesis), where a person is either healthy or sick (31). Focusing on health and how to promote this (health promotion)
can be associated with the theory of salutogenesis (56). Positive factors, such as resources, and how to promote health among persons at work with pain are central in this theory.

In previous research a relationship between work presence/sick leave and pain (17;19;20), age (72), gender (70;72), percent position (16) and type of work (12;15;73) is found.

A relationship between work presence/sick leave and SOC is also found among parents of children with Down’s syndrome (Hedov et al 2006) and in the general Swedish population (90). The literature shows, however, divergent results about the relationship between SOC and work presence/sick leave among employees with pain among primary care patients (26) and among male farmers (27).

Based on the theory and research presented earlier, it can be of interest to study potential associations to what makes employees present at work with pain. SOC, pain intensity and other demographical variables will be of interest. This study will represent a different sample than previous studies. It includes employees with pain and a low socio economic group referred to a Norwegian rehabilitation center. This study will also have a larger amount of participants than previous studies, covering both genders and have a variation in age groups.
3 Materials and methods

This chapter begins with describing the study design and the participants. Then, the measurements used in the study will be discussed. In the end statistical analysis and ethical considerations will be provided.

3.1 Study design

This thesis was based on a cross sectional study with surveys carried out from 1st January 2003 until 2nd November 2010.

3.2 Inclusion of people in the study

3.2.1 The process of recruitment

The people in the study were recruited from a register made by the rehabilitation centre Friskgården in Norway. Friskgården is an independent Norwegian institution that works with human health and well-being (91), mainly based on the theoretical concept ”Salutogenesis” (21). The sample in the present study represents people that have been referred to a measure at Friskgården by their doctor, The Norwegian Labour and Welfare Administration (NAV), the employer or on their own initiative. They all have an employment and they all report pain. The intension of the measures at Friskgården is to support employees to be present at work despite complex health issues (Appendix 2). The recruitment base was the questionnaire that people fill out prior to any intervention and before joining all of the different activities at Friskgården. A total number of 3070 participants were registered in the database.

3.2.2 Participants

1121 participants were used in the study. They were aged 15-68 and lived in rural and urban municipalities in the middle and southern parts of Norway (see flow chart, figure 1). All the participants had a job. The represented positions were trade workers/craftsmen, unskilled workers, drivers, farmers/fishermen, shop and office attendants, managers and
independent/academic. White collar workers are managers and independent/academic and blue collar workers are the other occupations. To measure the participants’ own experience of pain, 3 scales were used. A sum of 0-3 was considered no pain, whereas a sum above 3 was considered increasing pain. All the participants reported self-defined physical pain with a minimum sum of 3.

**Figure 1: Flow-chart of the inclusion process.**

### 3.3 Measurements in the survey

The questionnaire consisted of seven different parts: part 1- ”Personal background”, part 2- ”How you evaluate yourself”, part 3- ”Way of life”, part 4- ”How you feel”, part 5- “SOC-13”, part 6- “Functional evaluation/COOP/WONKA” and part 7- “Work environment”. In this study part 1- “Personal background”, which includes sick leave, part 2- ”How you evaluate yourself”, which includes pain, and part 5- “SOC-13” were used. The questionnaire was in Norwegian.
3.3.1 Measurements of work presence and sick leave

The participants were asked if they had any sickness absence during the last 12 months, either with a self-reported absence or with a sick leave from the doctor (Appendix 8). If the answer was yes, the next question was for how long. 2 weeks or less, 2-8 weeks and more than 8 weeks were the alternatives. These two questions are categorical dichotomy, where the alternatives are either yes or no on both. Participants answering, both yes and no, on the first questions were included in the study. On the second question alternative three was more than 8 weeks. Participants answering, yes or no here, were the two groups used in this study. Persons with absence of 8 weeks or less (answering no to the question) were regarded as present at work (PW), while people with more than 8 weeks of absence (answering yes to the question) was regarded as on sick leave (SL). This variable is categorical ordinal and was used as the dependent variable.

The 8 week cut-off was based on previous studies indicating that employees on sick leave for more than 8 weeks have increasing risks of permanent or long-lasting absence from work life (66).

3.3.2 Assessment of SOC with SOC-13

SOC was measured by the questionnaire SOC -13. SOC -13 consists of 13 numeric rating scales (NRS). NRS is a scale were the numbers are enclosed in boxes (50). The SOC-13 scale ranges from 1-7 with for example, never and very often as end points on the scale (Appendix 10). The questions are categorical ordinal but are in most studies, including this one, used as a sum score and a continuous variable. That means that the scores from each question in SOC-13 from one person are summed, resulting in a range from 13 to 91. This variable will be the independent one. The questionnaire used in this study is translated from English into Norwegian by Sunnaas hospital and was used in the Norwegian doctoral thesis “Function and work ability following multidisciplinary rehabilitation for individuals with chronic musculoskeletal pain” (92).

Validity and reliability

The SOC scale measures a person’s capacity to respond to a stressful situation. It shows good validity and reliability (1;39;40), especially for employees (93). In addition it shows good
validity and reliability for numerous other groups, such as a Finnish population (52), survivors of the m/s Estonia Disaster (94), in patients with orthopedic injuries (95) and morbid obesity (96), among schizophrenic patients (97) and in vocational rehabilitation of unemployed with somatic disorders (98).

The questionnaire has been used in at least 33 languages in 32 countries and seems to be a cross culturally applicable instrument (40). Although Norway is one of countries, but no additional translation was found. The three dimensions of the scale are not completely clear, and studies on whether the SOC scales actually correlate with the theoretical principals about SOC present differing results. Sex difference has been found. Men usually have a slightly higher SOC than women, but the difference is small. The relation between the SOC scale and other instruments shows relatively high negative correlation with anxiety and depression and strong positive correlation with optimism and self-esteem. Studies on whether the SOC scale predicts health have divergent results. However, a main finding is that SOC has a strong relation to mental health. The scale seems to be comparatively stable over time, especially for people with high SOC, but not as stable as Antonovsky believed. No significant differences have been found, only very small differences in a three to five year perspective. SOC tends to increase with age (40).

### 3.3.3 Assessment of pain

Pain, in this study, was self-defined pain intensity beyond a limit without any relation to a specific part of the body. Two of the questions (about the worst and weakest pain) use numeric rating scales (NRS) (Appendix 9). They range from none (0) to very severe (10) pain. The last question is also a NRS in relation to how much the pain is of bother, from not at all (0) to very bothered (10). The participants included had a minimum sum of 3 on the 3 questions. The reason for cut-off was that this would include all the people with pain, from mild pain (3) to severe pain (30). These questions were part of the inclusions criteria. They are actually categorical ordinal, but their sum is treated as a continuous variable. NRS are valid, reliable and shows good sensitivity in measuring pain intensity (48;50).

A relation between the level of pain and sick leave has been seen earlier (69). This has been controlled for in this study.
3.3.4 Socio-demographic variables

Socio-demographic related information was recorded for all participants, and included the variables age, gender, educational level, type of work, percent position and marital status (Appendix 8). These factors were allowed for in the analysis. The reason for controlling for age and gender is that previous research show that they have an influence on work presence (70;72). Educational level and type of work are also associated to work presence in previous studies (12;15). Percent position and marital status can also be assumed to have an influence on the result.

Age was a continuous variable, gender a categorical dichotomy and the percent position is categorical ordinal. Level of education, type of work and level of pain were categorical nominal variables.

3.4 Statistical analysis

Statistical analyses were performed with SPSS software (Statistical Packages for the Social Sciences) for Windows, version 18.0.

The demographic features are presented as frequencies, range, mean and standard deviation (SD) for the two groups, present at work (PW) and sick leave (SL). First, bivariate analysis was used to look at differences between the two groups. All of the continuous variables were normally distributed. Independent samples t-test was therefore conducted to look at differences in SOC, pain intensity and demographical variables between the two groups. For nominal demographical variables a chi-square test was used.

Then, multivariate analysis was performed, to look at other variables that might affect the results. A logistic regression analysis was used to examine the association between work presence (as dependent variable) and SOC (as independent variable). Work presence was coded as 1 and sick leave as 0. Before doing the logistic regression analysis all relevant independent variables were tested for inter correlations.

Pearson correlation coefficients (r) was used to look at possible correlations between the continuous and dichotomy independent variables. The variables were age, gender, marital status, pain intensity, SOC, educational level and percent position. The references were women, unmarried and a low educational level. Since type of work is not a dichotomy or a
continuous variable other analyses were performed for this variable. Due to an observed
distinction between white- and blue collar workers possible correlations between the
independent variables in those two groups were investigated. For the continuous variables
(SOC, pain and age) mean and SD among white- and blue collar workers were identified, and
an independent sample t-test was conducted to look at possible differences between the two
groups. For the other variables (gender, educational level, marital status and percent position)
a crosstab with n and % was performed, and a chi-square was conducted to look at possible
differences between the two groups. Other bivariate analyses were also conducted (chi-square
and t-test), to see how the independent variables were spread in the two groups PW and SL.
P-value>0.2 were taken out of the regression analysis. This cut-off was chosen to get a wide
set of variables in the analysis, because of few independent variables in the first place. Having
a large sample will also indicate statistically significant (p<0.05) for not being a good criteria
for inclusion. That is the reason for choosing a cut-off for inclusion in the logistic regression
analysis. SOC was entered in the logistic regression analysis based on the aim of this study.
The other variables were age, gender, type of work, percent position and pain. The logistic
regression analysis was also performed with SOC divided into groups of two and three and
type of work divided into white- and blue collar workers. In the end a logistic regression
analysis with age and pain intensity divided into three was conducted.
A p-value of less than 0.05 was chosen to be statistically significant.

3.5 Ethics

All the participants received written information in front of the Questionnaire. They were
informed about the data material of Friskgården being collected in a data bank with approval
from the Norwegian Data Supervision (NSD), which make sure personal information is
treated within current requirements of privacy policy (99) (Appendix 7). The participants
were informed about their right to refuse to participate, and the right to withdraw their consent
to participate at any time. The anonymity of the participants in this study was ensured through
unidentified material, thus without using names, personal identity number and other
characteristics. All participants in this study gave their written consent before participating,
and the procedures followed the World Medical Association Declaration of Helsinki (100)
(Appendix 1).
This research might help in developing knowledge about employees, being present at work and not, with common health problems, such as pain. There can be economic, social and moral arguments for performing such a study, and at the same time it can be seen as a project involving low risk for the participants.

The protocol was reviewed and approved by The National Committee for Medical Research Ethics, Northern Norway (Appendix 3-6).
4 Results

This chapter begins with presenting the results from the descriptive analysis among employees with pain present at work (PW) and employees on sick leave (SL). Then, a possible association between work presence and SOC through the t-test analysis and the logistic regression analysis will be studied. Other variables that may have an influence on work presence will also be investigated. The variables are age, gender, educational level, type of work, percent position, marital status and pain intensity. A summary of the results will be presented in the end.

4.1 Demographic features

This cross sectional study included 1121 employees (389 missing).

Table 7 illustrate that 72 % of the participants are present at work. There are more women (74.7 %) than men (25.3 %) among the participants, and 12-15 % have higher educational level (university/college). 74.5 % are unmarried/single. A majority of the participants are unskilled workers or work as trade workers/craftsmen (62.7 %). Chi-square and t-test shows a significant difference in age and percent position between the two groups PW and SL (Age: p=<0.001 and percent position: p=0.003).
Table 7: Demographic features for people present at work (PW, n=806) and people on sick leave (SL, n=315).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>PW</th>
<th>SL</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=806</td>
<td>N=315</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean (range), (SD)</td>
<td>48.7 (15-68)</td>
<td>46.4 (21-68)</td>
<td>&lt;0.001¹</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women n (%)</td>
<td>591 (73.3 %)</td>
<td>246 (78.1 %)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>215 (26.7 %)</td>
<td>69 (21.9 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>205 (25.4 %)</td>
<td>81 (25.7 %)</td>
<td></td>
</tr>
<tr>
<td>Unmarried/single</td>
<td>601 (74.6 %)</td>
<td>234 (74.3 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>221 (27.4 %)</td>
<td>67 (21.3 %)</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>226 (28.0 %)</td>
<td>88 (27.9 %)</td>
<td></td>
</tr>
<tr>
<td>Academic certificate/</td>
<td>236 (29.3 %)</td>
<td>106 (33.7 %)</td>
<td></td>
</tr>
<tr>
<td>Vocational training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University/college &lt;4 years</td>
<td>90 (11.2 %)</td>
<td>35 (11.1 %)</td>
<td></td>
</tr>
<tr>
<td>University/college &gt;4 years</td>
<td>19 (2.4 %)</td>
<td>3 (1.0 %)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>9 (1.1 %)</td>
<td>4 (1.3 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Type of work</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unskilled occupation</td>
<td>244 (30.3 %)</td>
<td>105 (33.3 %)</td>
<td></td>
</tr>
<tr>
<td>Trade worker/craftsmen</td>
<td>260 (32.3 %)</td>
<td>94 (29.8 %)</td>
<td></td>
</tr>
<tr>
<td>Working as officials, in shops</td>
<td>183 (22.7 %)</td>
<td>67 (21.3 %)</td>
<td></td>
</tr>
<tr>
<td>and offices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible position</td>
<td>55 (6.8 %)</td>
<td>31 (9.8 %)</td>
<td></td>
</tr>
<tr>
<td>Drivers</td>
<td>31 (3.8 %)</td>
<td>14 (4.4 %)</td>
<td></td>
</tr>
<tr>
<td>Farmers/fishermen</td>
<td>20 (2.5 %)</td>
<td>2 (0.6 %)</td>
<td></td>
</tr>
<tr>
<td>Independent/academic</td>
<td>13 (1.6 %)</td>
<td>2 (0.6 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Percent position</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Until 50 %</td>
<td>173 (21.5 %)</td>
<td>48 (15.2 %)</td>
<td></td>
</tr>
<tr>
<td>51 % - 80 %</td>
<td>175 (21.7 %)</td>
<td>53 (16.8 %)</td>
<td></td>
</tr>
<tr>
<td>&gt;80 %</td>
<td>458 (56.8 %)</td>
<td>214 (67.9 %)</td>
<td></td>
</tr>
</tbody>
</table>

¹=t-test. ²=chi-square.
4.2 SOC among PW and SL

SOC was equivalently distributed in the two groups with almost identical mean: PW (Mean: 62.5, SD: 12.7) and SL (Mean: 61.5, SD: 12.7). The histograms show an almost equal distribution in the two groups, and they resemble normal distributions.

![Histograms showing “Sense of Coherence” (SOC) among people present at work (PW) (left) and people on sick leave (SL) (right). The questionnaire measuring SOC is SOC - 13 (score range 13-91, 91 indicate the highest level of SOC).](image)

An independent-samples t-test was conducted to compare SOC in the two groups PW and SL. There were no significant difference in scores between the groups (p=0.3).
4.3 Associations between work presence/sick leave, SOC, pain intensity and demographical variables

A logistic regression analysis was performed to investigate how other variables may have an influence on work presence. The variables were, in addition to SOC, age, gender, educational level, type of work, percent position, marital status and pain intensity.

The first step was to look at inter correlations between the independent variables (age, gender, marital status, pain intensity, SOC, educational level, percent position and type of work: white- and blue collar workers). White collar workers are managers and independent/academic and blue collar workers are manual workers.

**Table 8:** *Pearson correlation coefficients (r) between the variables age, gender, marital status, pain, “Sense of coherence” (SOC), educational level and percent position for all of the participants in the study (n=1121).*

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Gender</th>
<th>Marital status</th>
<th>Pain</th>
<th>SOC</th>
<th>Educational level</th>
<th>Percent position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>0.04</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td>0.02</td>
<td>-0.03</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pain (Scale: 0-30)</strong></td>
<td>0.06*</td>
<td>-0.03</td>
<td>-0.007</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SOC (SOC-13. Scale:13-91)</strong></td>
<td>0.2**</td>
<td>-0.008</td>
<td>0.09**</td>
<td>-0.08**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td>-0.09**</td>
<td>-0.003</td>
<td>0.04</td>
<td>-0.2**</td>
<td>0.06</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Percent position</strong></td>
<td>-0.11**</td>
<td>0.3</td>
<td>0.002</td>
<td>-0.1**</td>
<td>-0.03</td>
<td>0.1**</td>
<td>1</td>
</tr>
</tbody>
</table>

Italicized font indicates significant differences.
*p<0.05 (2-tailed) **p<0.01 (2-tailed).
No strong correlations were found between the independent variables age, gender, marital status, pain, SOC, educational level and percent position (table 8). Statistically significant correlations were found, but they were weak. The strongest statistically significant correlation was between gender and percent position (r=0.3). A correlation between SOC and age (r=0.2) and a negative correlation between educational level and pain (r=-0.2) were also found. The tolerance values were also lower than 0.99, which support no correlation between the independent variables.

Table 9: Age, “Sense of coherence” (SOC) and pain among white- (n=101) and blue collar workers (n=1020). White collar workers are managers and independent/academic workers and blue collar workers are manual workers.

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>White collar workers (n=101)</th>
<th>Blue collar workers (n=1020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC (scale range 13-91)</td>
<td></td>
<td>65.7 (1.1)</td>
<td>61.8 (0.4)</td>
</tr>
<tr>
<td>Pain (scale range 3-30)</td>
<td></td>
<td>14.0 (12.9)</td>
<td>16.1 (16.5)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td>48.6 (1.0)</td>
<td>47.9 (0.3)</td>
</tr>
</tbody>
</table>

The variables are given in mean (SD). The questionnaire measuring “Sense of coherence” (SOC) is SOC -13 (score range 13-91, 91 indicate the highest level of SOC). Pain is a sum of three questions, 30 indicate pain at the worse.

Table 9 shows a difference in mean between the groups white- and blue collar workers in SOC (65.7, 61.8) and pain (14.0, 16.1). An independent sample t-test confirmed a difference in SOC (p= 0.004) and pain (p=<0.001) between white- and blue collar workers.
Table 10: Gender, marital status, educational level and percent position among white- and blue collar workers. White collar workers are managers and independent/academic workers and blue collar workers are manual workers.

<table>
<thead>
<tr>
<th></th>
<th>White collar workers (n=101)</th>
<th>Blue collar workers (n=1020)</th>
<th>P-value (chi-square)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>69 (11.3 %)</td>
<td>768 (91.8 %)</td>
<td>0.12</td>
</tr>
<tr>
<td>Men</td>
<td>32 (8.2 %)</td>
<td>252 (88.7 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Unmarried/ single</td>
<td>15 (5.2 %)</td>
<td>271 (94.8 %)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>86 (10.3 %)</td>
<td>749 (89.7 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Elementary School</td>
<td>4 (1.4 %)</td>
<td>12 (98.6 %)</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>8 (2.5 %)</td>
<td>306 (97.5 %)</td>
<td></td>
</tr>
<tr>
<td>Academic certificate/ Vocational training</td>
<td>15 (4.4 %)</td>
<td>327 (95.6 %)</td>
<td></td>
</tr>
<tr>
<td>University/ college &lt;4 years</td>
<td>58 (46.4 %)</td>
<td>67 (53.6 %)</td>
<td></td>
</tr>
<tr>
<td>University/ college &gt;4 years</td>
<td>13 (59.1 %)</td>
<td>9 (40.9 %)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1 (7.7 %)</td>
<td>12 (92.3 %)</td>
<td></td>
</tr>
<tr>
<td><strong>Percent position</strong></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Until 50 %</td>
<td>9 (4.1 %)</td>
<td>212 (95.9 %)</td>
<td></td>
</tr>
<tr>
<td>51-80 %</td>
<td>8 (3.5 %)</td>
<td>220 (96.5 %)</td>
<td></td>
</tr>
<tr>
<td>&gt;80 %</td>
<td>84 (12.5 %)</td>
<td>588 (87.5 %)</td>
<td></td>
</tr>
</tbody>
</table>

The variables are given in n (%). Italicized font indicates significant differences.

Table 10 illustrates a difference in marital status, educational level and percent position among white- and blue collar workers. Chi-square test showed a statistical significant difference in marital status (p=0.01), educational level (p=<0.001), and percent position (p=<0.001). Among white collar workers more people are married, have higher educational level (university/college) and are working >80 %. Among blue collar workers there are more people being unmarried/single, have lower educational level and are working <80 %.
Other bivariate analyses (chi-square and t-test) were also conducted, to see how the independent variables were spread in the two groups PW and SL. P-value>0.2 was taken out of the regression analysis. SOC was not statistically significant in the first analysis, but was entered in the further analysis based on the aims of this study (aim 1+2). The other variables entered in the regression analysis were SOC, age, gender, type of work, percent position and pain (aim 2). Educational level was poorly associated with work presence (p=0.23), and was therefore not included in the regression analysis.

**Table 11: Logistic regression analysis showing crude and adjusted odds ratios for work presence with 95% confidence intervals for gender, type of work, age, percent position, pain and “Sense of coherence” (SOC).**

<table>
<thead>
<tr>
<th></th>
<th>Crude estimates (Odds ratio) 95% CI</th>
<th>p-value</th>
<th>Adjusted estimates (Odds ratio) 95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>♂ (n=284)</td>
<td>1.30 (0.95-1.77)</td>
<td>0.099</td>
<td>1.55 (1.11-2.16)</td>
<td>0.01</td>
</tr>
<tr>
<td>♂ (n=284)</td>
<td>Reference</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Type of work</td>
<td></td>
<td>0.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unskilled occupation (n=349)</td>
<td>Reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade workes/craftsmen (n=354)</td>
<td>1.19 (0.80-1.65)</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working as officials, in shops and offices (n=250)</td>
<td>1.18 (0.82-1.65)</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible position (n=86)</td>
<td>0.76 (0.47-1.25)</td>
<td>0.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drivers (n=45)</td>
<td>0.95 (0.49-1.87)</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmers/fishermen (n=22)</td>
<td>4.30 (0.99-18.7)</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent/academic (n=15)</td>
<td>2.80 (0.62-12.6)</td>
<td>0.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years) (15-68)</td>
<td>1.02 (1.01-1.04)</td>
<td>0.001</td>
<td>1.02 (1.01-1.04)</td>
<td>0.002</td>
</tr>
<tr>
<td>Percent position</td>
<td></td>
<td>0.003</td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Until 50 % (n=239)</td>
<td>Reference</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>51 % - 80 % (n=260)</td>
<td>0.92 (0.59-1.43)</td>
<td>0.7</td>
<td>0.91 (0.57-1.44)</td>
<td>0.68</td>
</tr>
</tbody>
</table>
The results from the logistic regression indicated that SOC had no effect on work presence even when controlling for other variables (p=0.96) (table 11) (aim 2). The logistic regression analysis was repeated with SOC divided into 2 and 3 groups. There was still no association to PW (p>0.2).

However, gender, age, percent position and pain intensity all showed an independent statistically significant association to work presence. Men in this study were 55 % more likely to be present at work than women. People working between 51 and 80 % have a 9 % higher chance of not being present at work, compared to people working less than 50 %. And people working more than 80 % have 47 % higher chance of not being present at work compared to people working less than 50 %. People with increased pain were less likely to be present at work. Finally this study showed that the chance of being present at work increased when reaching a higher age. Type of work was not associated to work presence.

Since age and pain intensity were continuous variables, they were grouped into three categories in further analysis, to examine their association to work presence.
Table 12: Logistic regression analysis showing crude and adjusted odds ratios for work presence with 95% confidence intervals for gender, type of work, age (divided into 3), percent position, pain (divided into 3) and “Sense of coherence”(SOC).

<table>
<thead>
<tr>
<th></th>
<th>Crude estimates (Odds ratio) 95% CI</th>
<th>p-value</th>
<th>Adjusted estimates (Odds ratio) 95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>♀ (n=837)</td>
<td>Reference</td>
<td>0.099</td>
<td>Reference</td>
<td>0.01</td>
</tr>
<tr>
<td>♂ (n=284)</td>
<td>1.30 (0.95-1.77)</td>
<td></td>
<td>1.52 (1.09-2.12)</td>
<td></td>
</tr>
<tr>
<td><strong>Type of work</strong></td>
<td></td>
<td>0.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unskilled occupation</td>
<td>Reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=349)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade workers/craftsmen</td>
<td>1.19 (0.80-1.65)</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=354)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working as officials, in shops and offices</td>
<td>1.18 (0.82-1.65)</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=250)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible position</td>
<td>0.76 (0.47-1.25)</td>
<td>0.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drivers (n=45)</td>
<td>0.95 (0.49-1.87)</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmers/fishermen</td>
<td>4.30 (0.99-18.7)</td>
<td>0.05</td>
<td></td>
<td></td>
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<tr>
<td>(n=22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent/academic</td>
<td>2.80 (0.62-12.6)</td>
<td>0.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td>&lt;0.001</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>15-30 (n=62)</td>
<td>0.51 (0.29-0.87)</td>
<td>0.013</td>
<td>0.51 (0.29-0.90)</td>
<td>0.02</td>
</tr>
<tr>
<td>31-45 (n=396)</td>
<td>0.65 (0.49-0.85)</td>
<td>0.002</td>
<td>0.64 (0.48-0.86)</td>
<td>0.003</td>
</tr>
<tr>
<td>46-70 (n=662)</td>
<td>Reference</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td><strong>Percent position</strong></td>
<td></td>
<td>0.003</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Until 50 % (n=239)</td>
<td>Reference</td>
<td></td>
<td>Reference</td>
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</tr>
</tbody>
</table>
Age still had an influence on work presence. Work presence increased with increasing age. The last model (table 12) shows that people aged 15-30 years have reduced their chances of being present at work with 49 % compared to people between 46 and 70 years. For the 31-45 years of age group, the chances for being present at work were reduced with 36 % compared to people from 46-70 years.

Pain intensity also had an influence on work presence. The chances for being present at work increased when having less pain. The chances for being present at work when having pain from 3-10 compared to 21-30 were more than doubled. The employees had 56 % greater chance of being present at work when having pain from 11-20 compared to 21-30.

When using the three groups of age and pain in the analysis the main effects remained (table 12).

### 4.4 Summary of the results

In this study no significant association between work presence and SOC among employees with pain was found. An independent-sample t-test showed no significant difference in SOC between the groups WP and SL (p=0.3), and the logistic regression indicated that SOC had no effect on work presence even when controlling for other variables (p=0.96).
Other factors had a significant association to work presence; those were gender, percent position, pain intensity and age (p<0.02). Men, people working less (<50 %), having less pain and higher age were more present at work. Type of work, educational level and marital status were not associated to work presence.

No strong correlations were found between the independent variables age, gender, marital status, pain, SOC, educational level and percent position. The strongest statistically significant correlation, although weak, was between gender and percent position. A weak correlation was also found between SOC and age and a negative correlation between educational level and pain. A difference in SOC and pain between white- and blue collar workers was also found.
5 General discussion

This chapter starts out with an examination concerning the study sample, study design, methods of data collection and statistical procedures. Then, a discussion of the results compared to previous research will be provided. In the end clinical implications and further research will be considered.

5.1 Discussion of methodological aspects

Methodological aspects taken into consideration in this study are validity, reliability and study design. Validity refers to the meaningfulness of test scores as they are used for specific purposes (101). The term refers to as if conclusions are believable and useful, and can be divided into internal- and external validity. External validity is the extent to which the results can be used for generalizations; to whom, in what setting, and at what times the results are valid. Internal validity explores causal relationship between the independent and the dependent variable. Reliability is the extent to which measurements are repeatable (101).

5.1.1 Study sample

1121 people participated in this study. Compared to other similar studies among employees, this is a large sample (26;78;79;102). Larger samples tend to be more representative of their parent populations than smaller samples (101). The material and the conclusions in the present study can therefore seem as robust, and the probability of accurate conclusions is high.

A representative sample reflects the study population, meaning that the sample has similar background variables, such as age, sex and social status, as the present study population (103). A potential disadvantage of recruiting the participants from Friskgården is that it is not a random sample of the general population or the working population. The results can therefore not be directly extrapolated to other populations than employees with pain attending the measures of Friskgården. Employees with pain referred to Friskgården are mainly unmarried/single women present at work from 46-70 years with a low educational level, working as unskilled occupation and trade workers/craftsmen (blue collar workers), and can
be defined as a low socio economic group. That is the population this study can be representative for.

However, social class is found to be related to health among employees (104), and people with low socio economic status in Norway report more pain than the general population (105). People with a low socio economic background also have a smaller chance of attending work when they have problems (29). They report on more sick leave (29). For these reasons, a study on groups with low socio economic status might even prove more important and useful than a study of the general population.

The external validity in the present study is supported by previous studies with similar samples (19) The composition of the sample in the present study is equal to a sample conducted among employees with pain (n=143) that also collected data from Friskgården (19). Women represented 74.8 % of the sample (19), which is comparable to 74.7 % women in the present study. A previous Swedish study about sick leave and SOC also represents a similar sample as the present study. The sample consisted of employees with musculoskeletal pain recruited from primary care centers (26). Comparable to the present study, the mean age in the sample was 44 (17-64), and there were mainly women and blue collar workers (26). The sample in the present study also had participants with a similar range of age as other Swedish studies about SOC among employees with and without pain (25;26).

As opposed to previous studies about SOC and work where only one type of job is represented, in the present study several types of jobs are represented (78;79;83) (table 4). Another positive aspect about the sample of this study is that both urban and rural municipalities in southern and middle part of Norway are represented. The people referred to Friskgården are also a group with a variation of health issues. This makes the sample representative for a larger population.

5.1.2 Study design

Possible associations between work presence, SOC, pain intensity and demographical variables among employees with pain have been investigated. For this purpose, a cross sectional study was considered suitable. Cross sectional studies are appropriate to investigate the occurrence of a phenomenon or the risk factors in a sample within a given moment (106), or to compare the same phenomenon in two different groups (101).
The data was collected on one occasion. The time of data collection was before intervention by Friskgården, which means that the results will not be affected by any intervention. A limitation of cross-sectional studies is the lack of possibility to estimate cause and effect (106). On the other hand, they are cost-effective, quick and easy to perform, and at the same time easy to interpret (106). These were the main reasons for applying a cross-sectional design in this thesis.

5.1.3 Methods of data collection

The results in this study are based on data from questionnaires. The methods of data collection are important for the validity and the reliability of the results (103).

Questionnaire research can never be completely objective (107). Researchers, as well as participants are all human beings with subjective backgrounds, ideas and feelings that will affect the results (107).

A potential bias when using questionnaires for data collection is caused by the participants’ varying motivation of completing the questionnaire. They might have a desire to help others, do it out of boredom or because they feel pressured (107). The participants in this study may have wanted to help the person at Friskgården asking them to participate, or on the other hand they might have felt pressured to participate since they had been referred to a measure at Friskgården. Some may have been bored and just wanted to finish the long questionnaire, which had a total number of 24 pages. That being said, many of the participants did answer all of the questions in the questionnaire.

This study was based on questions that were part of a questionnaire developed by Friskgården. Friskgården staff have selected and decided on the questions and answer alternatives, and so their psychological, emotional and social needs will have influenced the result. In this study this may mainly affect the demographical variables. The two other questionnaires used, SOC-13 and NRS for measuring pain, were standardized and well tested, improving the quality of the study. In addition, the demographical data that was used (age, gender, education level, type of work, percent position and marital status) are assumed to be easy to understand and simple to answer, thereby reducing potential bias.
**Sick leave and demographical variables**

The participants in the study had to remember if they had been on sick leave for more or less than 8 weeks. A potential recall bias is always present when correct data depends on the memory of the participants (103). On the other hand, this variable is a dichotomy and the answer is either yes or now, hence the participants do not have to remember exactly how many days they had been on sick leave. Considering this, recall bias may not be a problem concerning this variable.

The questions about sick leave and the demographical variables are in the beginning of the questionnaire-sheet, which might give more accurate information from the participants. The participants have clearer thoughts, and might not yet be tired or bored. Their answers may be more truthful and correlate with how they really feel or think.

**SOC-13**

A potential bias in this study may be that the SOC-13 questionnaire that was used had been translated into Norwegian without being tested for validity and reliability. On the other hand, the English version of SOC-13 has shown good validity and reliability for employees (40). The results in the present study have the same variation in SOC as previous research among employees with and without pain (25;89). In the present study SD was 12.7. The mean in people present at work (PW) was 62.5 and among people on sick leave (SL) 61.5. In the study from Engstrom & Janson the mean of SOC for people not on sick leave was 69.7, short sick leave 66.7 and long sick leave 63.0. In the other Swedish study the mean of SOC for people not on sick leave was 70 and 64 for people on sick leave. As the variation in SOC in the present study is comparable to previous studies, this supports its external validity.

Even if SOC includes different psychosocial elements that might be difficult to measure, and it tends to be less stable than Antonovsky thought, the questionnaire has shown good validity and reliability among employees similar to the sample in this study (40). Finding a better way to measure the phenomenon SOC might prove difficult. A Norwegian study recommends caution when applying other instruments measure elements of how people manage stressful situations (108). The instruments in questions used were Coping and Defence Inventory (CODE) and Generalized Self-efficacy Scale (GSE). The study showed that both measures had a theoretical problem of not being related to their underlying theories. Less than 10 % of
the theoretical range of the scales was used. The scales appeared to measure a concept that was more stable than their underlying theory predicts, and they could not predict an important outcome (108).

**Pain intensity**

Pain intensity seems to be one of the easiest dimensions of pain to measure, but the results are not always easy to evaluate (48). People communicate more information about their pain than just the pain intensity when using a NRS scale (48). Measuring pain intensity can be influenced by factors like gender (109), setting (110) and time of day (50).

NRS has, as mentioned earlier, been shown to have good validity, reliability and sensitivity on measuring pain intensity (48;50). It is easy to administer and score, and older people do not appear to have as much difficulty with NRSs as they do with the Visual Analog Scale (VAS) (48;50). VAS is a continuous scale from 1-10, where 1 is no pain and 10 is severe pain (48). A weakness of the NRS scale the lack of ratio qualities such as VAS (111), but the scale has interval levels and can provide data for parametric analysis (50). However, compared to other measurements, NRS have many advantages as a simple and robust measurement (48;50).

### 5.1.4 Statistical issues

In this study t-test and logistic regression analyses were used to examine a potential association between work presence and SOC. These two analyses were suitable regarding type of variables used in the analyses. The logistic regression is also the adequate test to control for confounding and correlations between the independent variables. A confounding variable is a variable that correlate both with the dependent and the independent variable. If confounding variables are not considered, the risk of reporting relationships that are too strong or too weak, or not realistic at all increases (106).

In statistical analysis two types of mistakes may affect the results (103). A type I error is to discard the $H_0$ when it is actually correct. In studies with a large sample, small differences might result in statistic significance, but without clinical meaning. Type II errors occur when the $H_0$ is maintained when a difference actually is present. In this study, the large sample size contributes to minimizing the risk of making Type II errors (103).
The results indicate that there is no association between work presence and SOC (aim 1). The p-value was at 0.27, which is far away from the chosen significant level at 0.05. $H_0$ was kept. The large number of participants gives reason to believe that the probability for Type II errors is at a minimum. In aim 2 a significant association between work presence and age, gender, percent position and pain intensity was found. $H_0$ was therefore discarded. The association between work presence and the variables was highly significant ($p<0.021$) and this result was maintained in further analyses with new grouping of the variables. In aim 1 $H_0$ is kept. Type I errors are therefore not present. In aim 2 getting the same result with the variables divided into other categories in different analyses will support the conclusion.

SOC among employees present at work (PW) (21-91) and employees on sick leave (SL) (24-90) in this study is distributed from low to high scores in both groups. That makes a better foundation for testing the hypothesis than if the distribution of people had been mostly on high or low scores.

The selection of variables in the present study was based on previous studies and the theoretical frame in this study. There are of course other individual factors that were not taken into consideration in this study that might have an influence on work presence as well. Elements related to work, such as work attitudes, work stressors, well-being and work conditions, are examples of such factors. This is further discussed below (see 5.2.1).

### 5.1.5 Summary of the methodological discussion

A large sample can be seen as a strength in this study. The high number of participants makes the material more robust and the conclusions more accurate. The risk of Type II errors is also reduced.

The sample in the study represents employees mainly with a low socio economic status that experience pain and have been referred to a measure at Friskgården. This differs from the majority of previous studies on the topic. On the other hand, the sample in the present study is distributed across several types of jobs and a variety of both urban and rural municipalities in the Southern and middle parts of Norway. The people referred to Friskgården are also a group with a variation of health issues. This makes the sample representative for a larger population.
This being a cross-sectional study, an exploration of causal relationships between SOC, demographical variables or pain and work presence was not possible. However, the study design opens for assumptions of associations between work presence and SOC, pain or demographical variables at the time of measure.

Two standardized and well tested questionnaires were used (SOC-13 and NRS for pain). In addition the demographical variables were simple and easy to understand. The choice of analyses applied seemed to be adequate for the hypothesis that was investigated and the data types that the variables represent.

### 5.2 Discussion of the results

In the next chapters the results of the present study will be discussed based on the two aims presented in the introduction. Firstly, the results of the present study focusing on work presence and SOC (aim 1) will be in focus. Secondly, work presence and the relationship to SOC, pain intensity and other demographical variables (aim 2) will be discussed.

Why some people stay at work whilst in pain, while others are on sick leave is a complex phenomenon (see 2.3 Work presence and sick leave). In previous studies different perspectives have been used to explain the reasons for this phenomenon. Some factors lie within the individual itself, while others are related to the workplace and society as such (64).

Having in mind that the sample in the present study is dominated by a group with low socio economic status may seem to be important, as the literature describes an association between work presence and social class (29). The explanation of the difference is related to knowledge and people’s own understanding of their stressful situation, as well as their coping abilities, mental health, personality and social environment (29). People with a higher educational level participate 30 % more in the working life in Norway compared to people with lower secondary school as their highest level of education (15). These factors should be taken into consideration when examining a group with low socio economic background, as that may affect how the employees manage their situation with pain, as well as whether they are present at work or on sick leave.
5.2.1 Association between work presence and SOC

Aim 1: Is there an association between work presence and “Sense of Coherence” (SOC) among employees in pain?

No statistically significant association between SOC and work presence among employees in pain was found in the present study (p=0.27). This result differs from a previous Swedish study with a similar sample and design (26). The sample was employees with musculoskeletal pain recruited from primary care centers and the design was cross-sectional. The researchers found that SOC was different in patients on sick leave with musculoskeletal pain compared to patients that were not on sick leave. Sick-listed patients had lower SOC than non-sick listed patients. The classification of sick leave was ≥3 months and for no sick leave <3 months. This is similar to the present study, where sick leave was defined as 8 weeks or more. The conditions in the labour market in Sweden can also be assumed to be quite similar to the labour market in Norway.

An association between SOC and work presence was also found in two other Swedish studies (25;26;89;89). The study of Engstrøm & Janson had similar qualities as the present study (25), with a sample of a large number of women and men of different working ages (18-64, n=3123), used similar design and same measurement tool (SOC-13). On the other hand, their categorization of work presence was different than the present study. They differed between no sick leave at all, less than 28 days and more than 28 days (25).

However, both studies mentioned above had different samples than the present study (25;26;89;89). The study of Engstrøm & Janson based their analysis on Swedish regional data from the general population (25). The study of Hedov et al represented working parents of children with Down’s syndrome (89). As an opposite to the present study, none of the Swedish studies represented employees with a low socio economic background in pain that had been referred to a measure. The fact that the sample in the present study was different from previous research may partly explain why the results are different as well.

On the other hand, the result in the present study is supported by one cohort study on Swedish male farmers between 40 and 60 years with pain, where no relationship between work presence/sick leave and SOC was not found (27). As in the present study the researchers did not find any association between sick leave, educational level and marital status either (27).
The Swedish study also represented employees with pain (27). Having similar samples might explain the similar results.

A search of previous studies on the topic revealed only one study where no association between work presence and SOC was found. The politics of publication of articles might be one explanation why there are less studies showing no association between the two variables (112), as these studies do not present the ideal result. Studies that confirm the association may have been preferred for publication.

Summed up, the previous studies about work presence and SOC, mentioned above, showed divergent results. Two of them showed an association between work presence/sick leave and SOC (25;26) whilst one another showed no association between the two variables (27).

The assumption in present study to find that employees with a high SOC were more likely to be at work despite pain was based on results of previous studies, especially a study representing a similar sample as the present study, that was discussed at the beginning of this chapter (26). The assumption was also based on the phenomenon that SOC is representing. SOC is proved to be one of several factors that affect how people handle stressful situations (21;31;42). As having pain can be understood as a stressful situation, people with a high score of SOC were assumed to be better equipped to handle a stressful situation, and they were assumed to be present at work despite their pain.

When the present study could not document an association between work presence/sick leave and SOC, it might be interpreted to mean that such a relationship does in fact not exist. However, as other studies have showed the existence of such a relationship, the association could indeed exist, without the present study being able to capture it. This can be due to variables not controlled for, or simply a result of the fact that the phenomenon of how people manage stressful situations is very complex and difficult to measure (see 5.1.3).

In the present study the variables age, gender, marital status, educational level, percent position, type of work and pain were controlled for. However, variables like psychosocial factors were not measured. A systematic review evaluating psychosocial factors among employees showed that these factors were important in the sick-listing process (68). Factors that seemed especially important were social support, job control and demands. Having less social support would increase the risk of being on sick leave (68). In previous research
associations between SOC and work attitudes (82), work stressors and strain (23;24;87) well-being (79;83;84) and work conditions and social network (85) have also been found. These factors could be of interest in the present study, especially since the sample is dominated by a low socio economic group. They may manage a working situation with pain differently than others. The difference in SOC between white- and blue collar workers in the present study indicates that. The mean in SOC in the two groups were respectively 65.7 and 61.8, and statistical significant (p= 0.004). This difference between white collar workers and blue collar workers was also found in a previous study among male workers in Finland, where white collar workers had a higher level of SOC (113). These results show that type of work is associated to SOC, and that the phenomenon SOC still is worth to be involved in further research about work, especially with the distinction between white- and blue collar workers. Previous research supports this association between SOC and socio economic status (32-34;86). In addition blue collar workers also experienced more pain than the white collar workers in the present study. If blue collar workers, which commonly have a low socio economic background, have lower SOC and experience more pain, they may be a more vulnerable group and are important to study in order to increase their work attendance or to improve their health.

Summed up, possible explanations of why the results in the present study diverge from the results in similar studies are sample differences, a possible non-existence of an association between SOC and work presence, variables that have not been controlled for, and the phenomenon SOC being difficult to measure. On the other hand, SOC was found to be associated to type of work, which may give reasons for further research on the subject among people with a low socio economic background.

Mainly the association between work presence/sick leave and SOC and variables affecting the independent variable, SOC, has been discussed above. Having pain could be understood as a stressful situation, which we use SOC to manage. Based on the results in this study, SOC was not directly an essential factor for work presence/sick leave when having pain. There were other factors that had an influence on work presence among the people referred to Friskgården, specified that they had pain. This will be discussed in the next chapter.
5.2.2 Associations between work presence/sick leave and SOC, pain intensity and demographical variables

*Aim 2: To what extent is work presence associated with SOC, pain intensity and demographical variables in a multivariable model among employees in pain?*

In this study no significant association between work presence and SOC among employees with pain was found. However, other factors had a significant association to work presence, those were gender, percent position, pain intensity and age (p<0.02). Educational level, type of work and marital status did not affect work presence.

**Work presence/sick leave and gender**

Men in this study were 55 % more likely to be present at work than women. Reasons for differences between genders in reporting sick leave is currently of high interest in the public. Aftenposten had a large article series on this subject in October 2012. Different explanations can be given for the difference between the genders found in the present study.

One explanation may be that the increased chances for being present at work among men indicate that men have less pain than women. Or on the other hand, men may simply report less pain and manage the situation on their own by keep on working. In the literature this difference between the genders regarding health problem behavior have been found (114). For instance, more women than men seek advice from the doctor (114), which may end up in a sick leave. Possible interpretations of the difference in work presence may be the positions of men and women in the family, where traditional roles still exist: Women often take care of the children and have a larger role in the home in general, combining their job with housekeeping and taking care of the children (73). In that way many women have a “double burden”, which may increase the risk for being on sick leave. They may be too exhausted to be present at work considering the total situation. The literature shows that taking care of one’s own health or that of family members may lead to sick leave (63). This difference between the genders regarding the situation at home is greater among employees with low educational level than high (115). Among employees with higher educational level the role difference at home is less pronounced (115). The differences between the genders may therefore be more prominent in the present study compared to the general population.
Another factor that could explain more frequent sick leave among women is pregnancy. According to the sick leaves reported from doctors in Norway, 24% of the total difference in gender regarding sick leave is because of pregnancy (70). In the age group 20-39 years sick leave during pregnancy is the reason for almost half of the difference between genders (70). This may be one explanation for the sick leave differences between the genders in the present study, even though the participants do not report the reasons for sick leave. Pelvic pain is the most common reason for sick leave during pregnancy (116). The participants in present study report physical pain, which may include pain in the pelvic area.

Based on previous studies and the sample in this study it would be reasonable to believe that the factors mentioned above, such as pregnancy, different roles at home and different health behavior between the genders, may explain some of the differences between the genders in the present study when it comes to work presence/sick leave. Having a sample with low socio economic background may increase the differences between the genders, as gender differences regarding health problems have been found to be greater in groups with low socio economic status than in the general Norwegian population (29).

**Work presence/sick leave and percent position**

Percent position had an effect on work presence in this study. People working between 51 and 80% have a 9% higher risk of not being present at work, compared to people working less than 50%. People working more than 80% have 47% higher risk of not being present at work compared to those working less than 50%. This may be because a low percent position leaves spare time which is spent to recover from the pain or to get more energy to manage the working situation. A previous study about Norwegian nurses in Oslo supports this (16). Nurses working full time report sick leave more often than those working part time. The explanation given is that working full time is physically and psychologically tougher. The nurses that did not reduce their position when having problems, reported more sick leave (16).

An association between percent position and gender was also found in the present study. Women were found to work more part time than men. The differences between the genders as discussed above may explain why women work more part time. Women take care of a greater part of the life at home in addition to be at work (73). To manage all of it they may need to reduce their working hours. If they do not, the chances for being on sick leave increases, as for the Norwegian nurses discussed above (16).
Work presence/Sick leave and pain intensity

This thesis was built on an assumption of an existing relationship between work presence and pain intensity, in the sense that less reported pain would be connected to more frequent work attendance. The assumption was based on previous research showing that pain experience is indeed an important factor for being present at work (17-20). When the employee experiences less pain, the chances for being present at work with pain increases.

Pain intensity did have an influence on work presence in this study as well. The chances for being present at work increased when reporting lower pain intensity. The chances for being present at work when experiencing a pain intensity from 3-10 compared to 21-30 were more than double. There was 56 % greater chance of being present at work with a pain intensity from 11-20 compared to 21-30. A question that arises out of this is why some people experience the pain as more laborious while others experience the pain as less disturbing?

As discussed in chapter 2.1.7, pain experience can be understood as both how much it hurts (pain intensity), and the emotional aspect (pain effect). A systematic review shows that the subjective experience of pain can be influenced by our attitude towards the pain and how we cope with it, as well as different variables related to the social environment (44). The employees in the present study that reported less pain may feel more personally secure, they might have an optimistic attitude to their situation or more social resources than the employees reporting more severe pain. This might affect their work attendance. In numerous studies across a wide selection of people with pain, negative thoughts such as “the pain is awful and I feel that it overwhelms me” or “I cannot stand this” have been shown to be associated with higher levels of reported pain and poor adjustment to chronic pain (45).

Another explanation for the association between work presence and pain may be that people reporting severe pain have pain in more areas of the body than those reporting less pain. Previous studies found that the numbers of areas of pain correlate with sick leave (74). In this study the number of areas of pain was not reported, but still this can be assumed to be an explanation for more frequent sick leave among people with severe pain.

A relevant question for the present study is if socio economic background affects pain experience. This association can be confirmed by the results in the present study and previous research (2). Educational level and type of work was associated to pain in the present study, as in previous studies (2). Norwegian workers in high strain jobs, (including blue collar
workers) report a higher level of pain (117). On the other hand, computer work, which includes white collar workers, was neither found to associate to pain in a Norwegian study (117). People with a low socio economic background may also respond differently to pain than others, since they have less chance of attending work while having problems (report higher sick leave) (16).

From a treatment perspective it is highly relevant how people experience their pain. Helping people to understand what their pain represents and together find out the best ways to manage a situation with pain may encourage people to stay at work despite their experience of pain. Pain related fear may itself increase the risk of being on sick leave, and can lead to activity avoidance (47). People who both believe that they can control their pain and that they are not severely disabled appear to function better than those who do not (Jensen et al 1991). These may be important factors in promoting work presence among people with pain, especially among people with a low socio economic background, as they report more pain than the general population found in the present study and in previous reports (29).

**Work presence/sick leave and age**

Age had an influence on work presence in this study. The chances for being present at work increased with age. The results (table 11) show that people aged 15-30 years had a 49 % lower chance of being present at work compared to people from 46-70 years. For the age group 31-45 years the chances for being present at work 36 % lower than in the 46-70 years group. Possible interpretations of this result may be that older employees with pain may have a different attitude towards pain than younger workers. An English report discusses that pain among older people is highly prevalent and widely accepted as something normal (118). This may have an influence on how older people understand pain. Pain is, as mentioned earlier, a subjective experience (see definition 2.1.5), and the subjective experience of pain has in previous research, as in the present study, been seen as a predictor of work presence (17;19). When a pain condition is accepted as normal, the fear of attending work with pain may decrease.

In the present study older people tended to be more present at work compared to younger. At the same time SOC was also associated to age in the present study. Although it was a weak correlation, a previous study supports this association (1). Older people have a higher level of SOC (1). This does not necessarily mean that high SOC explains why older people are more
present at work than younger, as the results in the present study did not support any correlation between work presence and SOC.

5.2.3 Summary of the discussion of the results

Having pain could be understood as a stressful situation, which we use SOC to manage. Based on the results in this study, SOC was not an essential factor affecting work presence/sick leave when having pain. One possible explanation for not finding the same results as the main part of previous studies is that this study was built on a different sample, namely people with pain mainly with a low socioeconomic background that have been referred to a measure at Friskgården. Other interpretations of the result might be that the association between work presence and SOC does not exist, that there are uncontrolled for variables at play, or the fact that SOC is difficult to measure. Only in one previous study on employees with pain were the findings the same as in the present study (27). The politics of publications might be one explanation why there are less studies showing no association between work presence and SOC.

There were other factors that had an influence on people referred to Friskgården being present at work or on sick leave in the present study, specified that they had pain. These were gender, percent position, pain intensity and age. Factors such as pregnancy, different roles at home and different health behavior between the genders, may explain some of the differences in work presence between the genders in the present study. Differences regarding health problems have also been found to be greater in groups with low socioeconomic status than in the general Norwegian population (29).

The association between work presence and percent position might be explained by working full time as physically and psychologically tougher. In the present study women were found to be working less. To manage the work and the home situation they may need to reduce their working hours. If they do not, the chances for being on sick leave may increase, as for the Norwegian nurses discussed above (16).

The association between work presence and pain may be explained by how people experience their pain, how they evaluate it or in how many parts of the body they have pain. People from low socio economic groups also report more pain (29).
Possible interpretations of the association between work presence and age may be that older employees with pain possibly have a different attitude towards pain than younger workers, experiencing the pain as a normal condition. Higher SOC among older people is not necessarily an explanation for their work attendance, as the findings in the present study showed no association between work presence and SOC.

5.3 Clinical implications and further research

Finding an association between work presence and pain can be, as in the present study, highly relevant for clinical practice, as mentioned above. Giving people knowledge about their condition with pain may promote work presence, especially among people with a low socio economic background, as they report more pain than the general population found in the present study and in previous reports (29).

In this study SOC-13 was used to measure the “Sense of Coherence” among employees with pain. As mentioned above, even though SOC-13 shows good validity and reliability for employees, it might not be as stable as Antonovsky thought (40). Previous studies recommend that the SOC scale should not be used as a screening instrument in clinical practice, but rather as a concept to be implemented as a systematic orientation and perspective in the daily activities and actions of the professionals (40). So, even though SOC did not relate to work presence, it could still be important to use the concept in daily work as a health professional.

Measuring how people manage stressful situations with other measurements would be interesting. Measurements related to the specific working situation may give a better insight in how employees manage a stressful situation at work and the relationship to work presence and sick leave.

In light of the existing knowledge, it would be interesting to do a further examination of the association between work presence and SOC and other variables. Using data from NAV or other corresponding data with the same sample as this study would be of particular interest. Especially since SOC was found to correlate with type of work in the present study. People with a low socio economic background, mentioned in the introduction, has also not been studied as much as the general population, even though this group have less chance for
attending work while having problems (report higher sick leave) (29). This group also report more pain and poorer health (29). For these reasons, a study on groups with low socio economic status might even prove more important and useful than a study of the general population.
6 Conclusion

The main intention with this study was to look at possible associations between work presence and the capacity to manage stressful situations (“Sense of coherence”, SOC) among employees with pain. Having pain could be understood as a stressful situation, which we use SOC to manage. Other factors that could have an association to work presence were also investigated in the present study. Those were age, gender, educational level, type of work, percent position, marital status and pain intensity.

No statistical significant association between work presence and SOC among employees with pain was found in this study. Other factors had a significant association to work presence; those were gender, percent position, pain intensity and age.

This study represented people referred to Friskgården, a group mainly with low socio economic background. The majority of previous research has shown a correlation between work presence and SOC. The reason for the different results may be the fact that the sample in the present study is dominated by a low socio economic group.
7 Reference list


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Appendix

Overview of appendixes

Appendix 1: Enquiry about participation and written information for informed consent (Informasjonsskriv og samtykke erklæring)

Appendix 2: Information about Friskgården and their database (FG-database)

Appendix 3: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 1 (Brev fra REK Nord 05.10.2011)

Appendix 4: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 2 (Brev fra REK Nord 20.12.2011)

Appendix 5: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 3 (Brev fra REK Nord 06.03.2012)

Appendix 6: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 4 (Brev fra REK Nord 07.05.2012)

Appendix 7: License to register and store individual health information; The Data Inspectorate, Norway. (Konsesjon til å behandle helseopplysninger; Datatilsynet 01.09.2009)

Appendix 8: The demographical questions

Appendix 9: Questions about pain intensity

Appendix 10: SOC-13
Appendix 1: Enquiry about participation and written information for informed consent

FRISKGÅRDEN DATABANK

Hva er Friskgården Databank
Friskgården databank er en databasert samling av opplysninger som samles inn fra alle friskgårdene i Norge. Hensikten med en slik databank er å systematisere opplysninger som i neste omgang kan bidra til forskning og ny kunnskap om problemstillinger som samfunnet ikke har tilfredsstillende kunnskap om i dag.
Databanken har godkjent konsesjon fra Datatilsynet. En slik godkjenning sørger for at personopplysninger behandles i tråd med gjeldende krav til personvern.

Forskning
Forskningsarbeid kan bidra til økt kunnskap omkring noen av våre største folkehelseproblemer; smerter i muskel-skjelett-systemet, utbretningsproblematikk, lettere psykiske lidelser og ulike forhold omkring dette.
Eksempler på forskningsområder kan være:
* forebygging
* rehabilitering; herunder læring og mestring, kvalifisering
* velferd, arbeidsliv og livskvalitet

I arbeidet med kunnskapsutvikling samarbeider Friskgården med offentlige og private utdannings-og forskningsinstitusjoner.

Hvem kan delta og hva innebærer deltakelse
Vi ber om å få benytte informasjonen framkommet gjennom vedlagt spørreskjema. Opplysningene aidentifiseres og legges inn i datafiler for oppbevaring i databanken. Kobling mot navn og fødselsnummer oppbevares sikkerhetsmessig og i tråd med godkjenning fra datatilsynet. I forskningsprosjekt som innebærer behov for oppfølgingsstudier vil ansvarlig forsker få tilgang på nødvendige personopplysninger gjennom FoU-ansvarlig i Friskgården Databank.

Frivillighet og samtykke
Det er frivillig å samtykke i at personlige opplysninger legges i databanken.
Du kan når som helst trekke tilbake samtykke om at data skal oppbevares i databanken og be om at data om deg slettes.
Deltakere som har samtyk ket til å bidra med opplysninger til Friskgården Databank vil fortløpende kunne følge planlagte forskningsprosjekter på www.frisknett.no og derigjennom til enhver tid kunne reserve seg fra deltakelse.

Hvis du har spørsmål eller ønsker å få dine data slettet fra databanken kan du kontakte FoU-ansvarlig Aud Ramberg, tlf. 98246068 eller mail: aud.ramberg@frisknett.no
Appendix 2: Information about Friskgården

A. FRISKGÅRDENS TILBUD

B. SPESIFIKT OM FRISKGÅRDENS TILTAK

a) Generelt om Friskgården og Friskdatabasen
b) De ulike tiltakene.

Tiltakskode

01=Kjøp av helsetjenester i NT
02=Yrkesrettet attføring/arbeidskvalifisering
05=Arbeidsrettet rehabilitering
07=KSA (Kroppens serviceavtale)
08=FriskBedrift
09=FG-kurs
10=Livsmestring

A) Om Friskgården og FriskDatabasen

Friskgårdene har utviklet metodikk som bygger på en helsefremmende (salutogen) tilnærming. Tilbudene henvender seg mot voksne mennesker; enkeltindivider, grupper og miljøer; ledere, arbeidsmiljøer og enkeltindivider for å styrke robusthet i et langtidsfriskperspektiv, ungdom og voksne som er i risiko for å bli sykmeldt, sykmeldte arbeidstakere, mennesker i en rehabiliterings- og kvalifiserings situasjon og mennesker som av ulike årsaker ikke har greid å kvalifisere seg for et arbeidsliv.

Målsettingen er å fremme robusthet hos friske mennesker, mennesker som er i risiko for eller sliter med sammensatte problemstillinger. Å styrke menneskers robusthet til å mestre et arbeidsliv er sentralt.

Friskgårdens tilbud gjennomføres som kurs, opplæring og opptrening, rehabilitering, kvalifisering og inkludering. Det betyr at tilbudene utøves på ulike arena; Friskgården, kursarenaer i lokalmiljøer og arbeidsplasene.

Gjennom systematisk kartlegging av individ- og arbeidsmiljø er det etablert registerdata - FriskData. Fortløpende registreringer legges inn i databasen.
**B) De ulike tiltakene**

**01= Kjøp av helsetjenester i Nord-Trøndelag 2003-2007**

Friskgårdens multidisiplinære rehabiliteringsprogram bygger på en salutogen forståelse av sykdom, helse og mestring. Den salutogene forståelsesrammen innebærer at både biologiske, psykologiske og sosiale faktorer påvirker hverandre og gir et sammensatt og komplekst bilde av helse og sykdom. Målgruppen i programmet er sykmeldte; både sykmeldte som er sykmeldte fra en definert jobb og sykmeldte som ikke er i et definert arbeidsforhold men har uavklart forhold til helse og arbeid arbeidstakere og arbeidstakere.


Oppfølging foregår både som dagtilbud på Friskgården, i egne grupper i lokalmiljøet, på arbeidsplassen og som egenaktivitet/-trening i heimen. Omfang i oppfølgninga skreddersys for den enkelte. Det betyr at deltakerne i løpet av oppfølgninga kan være tilbake til eget lønnet arbeid, de kan være i annen arbeidsrelatert virksomhet hos egen arbeidsgiver eller ved annen virksomhet, eller de kan være i kvalifisering/utdanning. Alle deltakerne har sin egen personlige veileder. Den personlige veilederen har en brobyggerfunksjon mellom bruker, helsetjeneste, NAV og arbeidsgiver. Målet er å komme fram til hensiktsmessige løsninger når det gjelder arbeidsdeltakelse; både for bruker og arbeidsgiver.

**02=YRKESRETTET ATTFØRING / ARBEIDSKVALIFISERING**

Friskgårdens multidisiplinære rehabiliterings- og kvalifiseringsprogram bygger på en salutogen forståelse av sykdom, helse og mestring. Den salutogene forståelsesrammen innebærer at både biologiske, psykologiske og sosiale faktorer påvirker hverandre og gir et sammensatt og komplekst bilde av helse og sykdom. Målgruppen i programmet er deltakere
som sliter med sammensatte helseproblemer og på grunn av det har avsluttet sitt tidligere arbeidsforhold og står i en situasjon der de både har behov for å styrke arbeidsevne, ny tilpasses jobb og avklart arbeidsevne. Deltakerne henvises fra NAV.


**05=ARBEIDSRETTET REHABILITERING**

Siden 2007 har NAV konkurranseutsatt tre tiltak innenfor såkalte arbeidsrettet tiltak. Dette er avklarings- og rehabiliterings- og oppfølging. Friskgårdene i Akershus, Nord-Trøndelag, Sør-Trøndelag og Oppland har vært og er i ulikt omfang NAV’s leverandør av arbeidsrettet rehabilitering og avklaring - her omtalt som "arbeidsrettet rehabilitering".

Målgruppen for tiltaket er sykmeldte; både sykmeldte som er sykmeldt fra en definert jobb og sykmeldte som ikke er i et definert arbeidsforhold men har uavklart forhold til helse og arbeid arbeidstakere og arbeidstakere.

Tiltaket innebærer en individuelt tilpasset lengde på intervension fra 4-20 uker. Sykmeldte og/eller personer med reduserte arbeidsevne på grunn av med sammensatte problemstillinger er målgruppen. Arbeidsrettet rehabilitering bygger på forståelsen om integrerte helse-og arbeidsrettet tjenester.


I tillegg til Friskgården er arbeidsplassen en sentral arena for arbeidsrelatert trening og læring. Arbeidsrettet bistand bygger på kunnskap om supported employment.

Alle deltakerne har sin egen personlige veileder (flokeløser). Den personlige veilederen har en brobyggerfunksjon mellom deltaker, helsetjeneste, NAV og arbeidsgiver. Målet er å komme fram til hensiktsmessige løsninger når det gjelder arbeidsdeltakelse; både for bruker og arbeidsgiver.

**07= KROPPENS SERVICEAVTALE (KSA)**

Friskgården leverer KSA som tilbud i bedrifter til arbeidstakere som er i risiko for å bli sykmeldt på grunn av sammensatte problemstillinger; muskel-skjellett-problemer og/eller psykiske helseplager. KSA er et 40-timers kurs over 20 uker og gjennomføres på arbeidsplassen.

Kurset bygger på en helsefremmende (salutogen) tilnærming. Målsettingen er å styrke robusthet og lære mer hensiktsmessige teknikker for å mestre arbeidslivet.

I kurset inngår opplæring og trening i helse-og arbeidsrelaterte tema, opptrening i fysisk funksjon, ergonomi, avspenning og mental trening. En læringsmodell som bygger på empowerment står sentralt. Kurset starter med kartlegging og testing og avsluttes med framtidsverksted; en gruppebasert metodikk for å utvikle "min handlingsplan".

76
**08=FRISKBEDRIFT**

Friskgården leverer opplæringsprogrammet FriskBedrift til bedrifter. Målsettingen er å styrke ledere, arbeidstakere og arbeidsmiljøer i et lantidsfriskperspektiv. Programmet består av:

* Grunnkurs arbeidshelse. Lederopplæring bygd på helsefremmende ledelse.
* Kartlegging og rapporter for individhelse og arbeidsmiljø.
* Lederstøtte
* Tilleggstjenester; oppfølgning av sykmeldte.

**09=FRISKGÅRDSKURS (FG-KURS)**

Friskgården leverer åpne FG-kurs som tilbud til bedrifter og grupper av enkeltindivider


Læringsmodellen bygger på empowerment. Kursene har fokus på kommunikasjon, mental trening, stressmestring, livsstil og fysisk aktivitet.

**10=LIVSMESTRING**

Livsmestring er et fleksibelt oppfølgningstilbud til deltakere som sikrer oppfølgning over tid. Tilbudet er et multidisiplinært rehabiliteringsprogram som bygger på en salutogen forståelse av sykdom, helse og mestring. Den salutogene forståelsesrammen innebærer at både biologiske, psykologiske og sosiale faktorer påvirker hverandre og gir et sammensatt og komplekst bilde av helse og sykdom. Målgruppen i tilbudet er sykmeldte; både sykmeldte som er sykmeldte fra en definert jobb og sykmeldte som ikke er i et definert arbeidsforhold men har uavklart forhold til helse og arbeid arbeidstakere og arbeidstakere.

Deltakere henvises fra fastlege, arbeidsgiver eller de kan selv ta initiativ. Tilbudet består av utredning (4-6 uker) hvor deltakerne tar del i et poliklinisk tilbud. Etter dette inngås avtale om "abonnement" i ett år. I løpet av utredningen lages en individuell plan for oppfølgninga.

Appendix 3: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 1.

Prosjektleder
Hans Stifoss-Hanssen
Senter for diakoni og profesjonell praksis

2011/1698 Opplevelse av sammenheng hos arbeidstakere med fysiske smerten - en tverrsnittsstudie


Prosjektleders prosjektomtale:
Et overordnet møl i Norge er å ha flest mulig i arbeid (Internett: NAV 2010; Internett: Regjeringen 2010). 75 - 80 % av Norges befolkning vil i løpet av en måned ha opplevd smerten eller plager (Hilbeek m.fl. 2007), og smerten er et av de mest funksjonshemmende og kostnadskrevende helseproblemmene i den vestlige delen av verden (Hartoll og Ogphi 2003; Bratvik m.fl. 2006; Crombie m.fl. 1999; Bustøen m.fl. 2004). Langtidsfravær kan gi fysiske, mentale og sosiale problemer, mens arbeidsdelaktelse kan fremme bedring for personer med vanlige helseproblemer (Waddell og Burton 2006). Forskning viser en sammenheng mellom hvordan personer opplever arbeidsituasjonen og arbeidsdelaktelse (Engstam og Janson 2009).

Formålet med dette prosjektet er å se mulige forskjeller i "opplevelse av sammenheng" (OAS) hos sykmeldte og ikke-sykmeldte med fysiske smerten. Det kan frembringe ny kunnskap om nærvær og fravær som er av betydning i arbeidet for å holde flest mulig i arbeid.

Komiteens merknader:

Frameleggingsplikt
De prosjektene som skal framelegges for REK er prosjekt som dreier seg om "medisinsk og helsefaglig forskning på mennesker, humant biologisk materiale eller helseopplysninger", jf. helseforskningsloven (h) § 2. "Medisinsk og helsefaglig forskning" er i h § 4 a) definert som "virkomhet som utføres med vitenskapelig metodikk for å skaffe til veie ny kunnskap om helse og sykdom". Det er altså formålet med studien som avgjør om et prosjekt skal anses som frameleggingspliktig for REK eller ikke.

I dette prosjektet er formålet å se om det er noen forskjell i opplevelsen av sammenheng hos personer som er sykmeldt med fysiske smertene og personer som ikke er sykmeldt med fysiske smertene. Studien ser ut for i vesentlig grad å fokusere på personers egenvurdering av sitt sykefravær og komiteen mener studien ikke vil skaffe til veie ny kunnskap om helse og sykdom. Komiteen vurderer at prosjektet ikke skal vurderes etter helseforskningsloven.

Vedtak
Etter søknadens fremstår prosjektet ikke som et medisinsk og helsefaglig forskningsprosjekt som faller innenfor helseforskningsloven. Prosjektet er ikke framelegtingspliktig. jf helseforskningslovens § 10, jf.
forskningsetikkloven § 4, 2. ledd.

Vi gir oppmerksom på at evt. innhenting av opplysninger til prosjektet kan være avhengig av at det innhentes samtykke eller gis dispensasjon fra taushetsplikt, og at det for behandling av personopplysninger i prosjektet likevel kan være nødvendig med tillatelse fra personvernombud for forskning.


Vi ber om at tilbakemeldinger til komiteen og prosjektendringer sendes inn på skjema via vår saksportal: http://helseforskning.etikkom.no. Øvrige henvendelser sendes på e-post til post@helseforskning.etikkom.no.

Vennligst oppgi vårt referansenummer i korrespondansen.

Med vennlig hilsen,

May Britt Rossvoll
sekretariatsleder

Monika Rydland Gaare
førstekonsulent
Appendix 4: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 2.

Hans Stibsø-Hanssen
Senter for diakoni og profesjonell praksis, Postboks 184 Vindern

2011/1698 Opplevelse av sammenheng hos arbeidstakere med fysiske smetter - en tverrsnittstudie

Prosjektet ble behandlet i REK nord 22. september 2011 med følgende vedtak:

"Etter søknaden fremstår prosjektet ikke som et medisinsk og helsefaglig forskningsprosjekt som faller innenfor helseforskningsloven. Prosjektet er ikke framleggingspliktig, jf. helseforskningslovens § 10, jf. forskningsethikkloven § 4, 2. ledd."

Ved behandlingen av prosjektet uttalte komiteen:

"I dette prosjektet er formålet å se om det er noen forskjell i opplevelsen av sammenheng hos personer som er sykemeldt med fysiske smetter og personer som ikke er sykemeldt med fysiske smetter. Studien ser ut for i vesentlig grad å fokusere på personers egenvurdering av sitt sykefravær og komiteen mener studien ikke vil skaffe til veie ny kunnskap om helse og sykdom. Komiteen vurderer at prosjektet ikke skal vurderes etter helseforskningsloven."

Søker har påklaget vedtaket med slik begrunnelse:

"Ønsket omgjøring fra vår side er en opplevelse av vedtaket om at prosjektet ikke er framleggingspliktig. Årsaken til at det fremmes en klage er knyttet til begrunnelsen for vedtaket i REK. Der heter det at prosjektet ikke fremstår som et medisinsk og helsefaglig forskningsprosjekt som faller innenfor helseforskningsloven.

Dette virker lite forståelig og lite rimelig. Komiteen mener at studien ikke vil skaffe til veie ny kunnskap om helse og sykdom, og slik vurderingen er presentert synes dette å være begrunnet med et element av egenvurdering ("Studien ser ut for i vesentlig grad å fokusere på personers egenvurdering av sitt sykefravær og komiteen mener at studien ikke vil skaffe til veie ny kunnskap om helse og sykdom"). Dersom dette sikter til at opplysningene om sykmelding er kommet fram ved bruk av selvutfyllingsskjema, er det vanskelig å se at dette er en innvendig mot studiens potensial for å skaffe til veie ny kunnskap om helse og sykdom. Selvutfylling er vist mot en framtraddende måte å skaffe til veie relevante forskningsdata på. Dersom det siktes til et eventuelt subjektivt element ved selvutfylling ("egenvurdering"), virker dette lite rimelig i forhold til spørsmålet om sykmelding, som er et relativt enkelt faktaopptelling responsendene besvarer. - Det er ikke gitt noe kriterium som gjør at det er mulig å forstå hva "ny kunnskap" kan være i sammenhengen. Det er vår oppfatning at prosjektet har potensial for å frambringe ny kunnskap. - Dersom begrunnelsen dreier seg om at kunnskapen som skaffes til veie ikke vil.handle om helse og sykdom, blir ikke vurderingen mer forståelig eller rimelig. Vi går ut fra at komiteen ikke vil holde forskning på sykdomsforebygging, helsefremmende og relasjonen sykdom/voksunedtakelse utenfor forståelsen av helseforskning.

På denne bakgrunnen mener vi at prosjektet er et helsefaglig forskningsprosjekt som kommer inn under helseforskningsloven. Vi oppfatter det som naturlig og ønskelig at prosjektet behandles av etisk komite.

Da komiteen behandle prosjektet sett hadde sekretariatet foreslått "utenfor mandat".

Klagen ble behandlet av REK nord i møte 1 12.2011.
Komiteen har følgende merknader til klagen:

Prosjektet omhandler bruk av "Opplevelse av sammenheng" (OAS) spørreskjema for sammenligning av sykemeldte og ikke-sykemeldte personer med fysiske smerte.

Komiteen er kjent med at spørreskjemaet som vil brukes (OAS) ved denne studien er et kjent instrument som benyttes i mange land innenfor epidemiologiske helseforskning og arbeidspsykologi til å undersøke forholdet mellom stress, velferd og helse både hos pasientgrupper og yrkesgrupper.

Komiteen er fremdeles av den oppfatning at prosjektet ikke synes å være et medisinsk eller helsefaglig prosjekt når man leser forskningsprotokollen. Kapittelet "Formål og forskningssporramål" er lite klargjørende med hensyn til beskrivelse av forskningssporramålet. Imidlertid er komiteen usikker på dette og er et resultat av en ubehag fremstilling av prosjektet. Med bakgrunn i dette ønsker komiteen at prosjektleder redigere ytterligere før hypotesen i prosjektet samt at design og datamsaljing beskrives nærmere.

Slik prosjektet fremstår i dag fastholder komiteen sitt tidligere vedtak og saken kan oversendes NEM for avgjørelse. Imidlertid ønsker komiteen og gir prosjektleder anledning til å tydeliggjøre prosjektet evenfor komiteen. Det presiserer imidlertid at prosjektleder kan velge å la saken overføres til NEM for klagebehandling uten ytterligere behandling av REK. Prosjektleder bes i så tilfelle gi tilbakemelding om at det er ønskelig.

Vedtak:

Prosjektleder tilbys å tydeliggjøre søknaden for komiteen som vil foresa en endelig behandling av søknaden på første ordinære komitémøte etter motisk av dette.

Vi ber om at tilbakemeldinger til komiteen sendes inn på sjeima via vår saksportal: http://helseforsknin.etikkom.no. Ovrig henvendelser sendes på e-post til post@helseforsknin.etikkom.no

Vennligst oppgi vårt referansenummer i korrespondansen.

Med vennlig hilsen,

May Britt Rosvoll
sekretariatsleder

Monika Rydland Geare
seniorkonsulent
Appendix 5: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 3.

Hans Stifoss-Hanssen
Senter for diakoni og profesjonell praksis, Postboks 184 Vindem

2011/1698 Opplevelse av sammenheng hos arbeidstakere med fysiske smerter - en tversnittsstudie-Godkjenning med vilkår

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komite for medisinsk og helsefaglig forskningsetikk i møtet 16.02.2012.

Forskningsansvarlig institusjon: Diakonhjemmet Høgskole v/Hans Stifoss-Hanssen

Prosjektleder: Hans Stifoss-Hanssen

Prosjektleders prosjekttomte:
Et overordnet mål i Norge er å ha flest mulig i arbeid (Internett: NAV 2010; Internett: Regjeringen 2010). 75 - 80 % av Norges befolkning vil i løpet av en måned ha opplevd smerter eller plager (Hiebeek m.fl. 2007), og smerter er et av de mest funksjonshemnende og kostnadshavende helseproblemlene i den vestlige delen av verden (Harstall og Opitza 2003; Breivik m.fl. 2006; Crombie m.fl. 1999; Rustoen m.fl. 2004). Langtidssvarer kan gi fysiske, mentale og sosiale problemer, mens arbeidstakelskap kan fremme bedring for personer med vanskelige helseproblemer (Waddell og Burton 2006). Forskning viser en sammenheng mellom hvordan personer opplever arbeidssituasjonen og arbeidstakelskap (Engstom og Janson 2009). Formålet med dette prosjektet er å se mulige forskjeller i "opplevelse av sammenheng" (OAS) hos sykemeldte og ikke-sykemeldte med fysiske smerter. Det kan frembringe ny kunnskap om når og hvornår som er av betydning i arbeidet for å holde flest mulig i arbeid. Henvises til søknaden, sft 2011/1698

Beliggenhet
Saken ble første gang behandlet den 22.9.2011 hvor komiteen fattet vedtak om at prosjektet falt utenfor helseforskningsloven. Saken påklagede avgjørelsen og komiteen behandlet klagen i møte den 1.12.2011 og fattet følgende vedtak:

Prosjektleder tilbyr å tveleliggjøre søknaden for komiteen som vil foreta en endelig behandling av søknaden på første ordinære komiteøvelse etter mottak av dette.

Prosjektleder har gitt utfyllende redegjørelse av søknadens kapittel "Formål og forskningsspørsmål".

Komiteens vurdering
Komiteen har vurdert prosjekteders tilbakemelding og kommet til at prosjektet faller inn under helseforskningsloven. Komiteen har følgende øvrige kommentarer til søknaden:

Forespørsel/Informasjonskrav/samtykkeerklering
Forespørsel må utarbeides i tråd med mal for forespørsel og samtykke som finnes på nettsiden http://helseforskning.etikkom.no. Som det fremgår av malen, vil informasjonen som presenteres differensieres og lagdeles i en hoveddel og kapitler (A og B). Informasjonen som er gitt i hoveddelen skal
ikke repeteres i kapitlene, men utfylle hoveddelen. Det er derfor ikke alltid nødvendig eller hensiktsmessig å spesifisere hvert enkelt av de oppgitte punktene under kapittel A og B. Disse benyttes kun i den grad de er relevante og nødvendige, for eksempel dersom ikke tilstrekkelige opplysninger allerede finnes under hoveddelen av pasientinformasjonen. Det er også gitt rom for at egne og mer hensiktsmessige overskrifter kan benyttes under kapittel A (jf. malen).

Komiteen bør om at forespørselskrivet revideres i tråd med denne.

Vedtak

Med hjemmel i helseforskningsloven § 10 og forskningsetikkloven § 4 godkjennes prosjektet. For prosjektet kan igangssettes må det sendes inn revidert informasjonskriv i tråd med komiteens merknader.

Generelle vilkår

Godkjenningen er gitt under forutsetning av at prosjektet gjennomføres slik det er beskrevet i søknaden, protokollen, og de bestemmelsene som følger av helseforskningsloven med forskrifter.

Godkjenningen av prosjektet gjelder til 15.04.2013

Oppbevaring av data


Sluttmelding og søknad om prosjektendring

Prosjektleder skal sende sluttmelding på eget skjema senest et halvt år etter prosjektslutt, jf. helseforskningslovens § 12. Dersom det skal gjøres vesentlige endringer i forhold til de opplysninger som er gitt i søknaden må prosjektlederen sende søknad om prosjektendring til REK, jf. helseforskningslovens § 11.

Klageadgang


Vi ber om at tilbakemelding er til komiteen og prosjektendringer sendes inn på skjema via fær saksportal: http://helseforskning.etikkomm.no. Øvrige henvendelser sendes på e-post til post@helseforskning.etikkomm.no.

Vennligst oppgi vårt referansenummer i korrespondansen.

Med vennlig hilsen,
May Britt Rossvoll
sekretarstedsleder

Veronica Sørensen
rådgiver

Kopi til: hans.stifoss-hanssen@diakonhjemmet.no.
Appendix 6: Letters from The National Committee for Medical Research Ethics, Northern Norway, number 4.

Hans Stifoss-Hanssen

Senter for diakoni og profesjonell praksis, Postboks 184 Vindern

2011/1698 Opplevelse av sammenheng hos arbeidstakere med fysiske smører - en tverrsnittstudie

Forskningsansvarlig institusjon: Diakonihjemmet Høgskole v/Hans Stifoss-Hanssen
Prosjektleder: Hans Stifoss-Hanssen

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komité for medisinsk og helsefaglig forskningsetikk i møtet 16.02.2012. Etter dette møtet ble det sendt ut vedtak om godkjenning med vilkår om å lage et forespørsebrev. REK er i ettertid gjort oppmerksom på at det på søknadstidspunktet ble innsett en forespørsel som er brukt i forbindelse med å opprette Friskogården databanken. Datatilsynet har gitt konsesjon til databanken.

Komiteens vurdering
Prosjektleder har gitt utfyllende redegjørelse av søknadens kapittel "Formål og forskningsporsmål". Komiteen har vurdert prosjektleders tilbakemelding og kommet til at prosjektet faller inn under helseforskningsloven.

REK har sett på vilkår i konsesjonen, samt vurdert forespørselen opp mot det som skal gjøres i omsøkte studie. REK anser at forespørselen er dekkende for behandling av de innhentede data, slik de er beskrevet i det omsøkte studie.

Vedtak
Med hjemmel i helseforskningsloven § 10 og forskningsetikkloven § 4 godkjennes prosjektet.

Generelle vilkår
Godkjennelsen er gitt under forutsetning av at prosjektet gjennomføres slik det er beskrevet i søknaden, protokollen, og de bestemmelser som følger av helseforskningsloven med forskrifter.

Godkjennelsen av prosjektet gjelder til 15.04.2013

Oppbevaring av data

Sluttmelding og søknad om prosjektendring
Prosjektleder skal sende sluttmelding på eget skjema senest et halvt år etter prosjektslutt, jf.
helseforskningslovens § 12. Dersom det skal gjøres vesentlige endringer i forhold til de opplysninger som er gitt i søknaden må prosjektsleder sende søknad om prosjektendring til REK, jf. helseforskningslovens § 11.

Klageadgang

Vi ber om at tilbakemeldinger til komiteen og prosjektendringer sendes inn på skjema via vår sakssportal: http://helseforskning.etikkom.no. Øvrige hevnelser sendes på e-post til post@helseforskning.etikkom.no.

Vennligst oppgi vårt referansenummer i korrespondansen

Med vennlig hilsen,

May Britt Rossvoll
sekretariatsleder

Veronica Sorensen
rådgiver

Kopi til: nina.vollestad@medisin.uio.no, cmillaj@gmail.com
Appendix 7: License to register and store individual health information; The Data Inspectorate, Norway.

Datatilsynet

Frisknett AS
Sted
7717 STEINKJER

Deres referanse: Vår referanse (hus oppgitt ved svar)
09/00017-3 /MHN

Konsesjon til behandling av personopplysninger - Frisknett AS

Datatilsynet viser til Deres søknad av 5. januar 2009, om konsesjon til å handle personopplysninger.


Datatilsynet har vurdert søknaden og gir Dem med hjemmel i personopplysningslovens § 33, jf. § 34, konsesjon til å handle personopplysninger til det ovennevnte formål.

Behandlingsansvarlig er Frisknett AS ved øverste leder. Gjennomføringen av det daglige ansvaret kan delegeres.

Konsesjonen er gitt under forutsetning av at behandlingen foretas i henhold til søknaden og de bestemmelser som følger av personopplysningsloven med forskrifter.

Det forutsettes videre at det foretas en konkret vurdering av hvorvidt det vil foreligge melding/eller konsesjonspliktig til REK og/eller Datatilsynet, ved bruk av datamaterialet til forskning.

Dersom det skjer endringer i behandlingen i forhold til de opplysninger som er gitt i søknaden, må dette fremmes i ny konsesjons søknad.
I medhold av personopplysningslovens § 35, fastsettes i tillegg følgende vilkår for behandlingen:

1. Den behandlingsansvarlige skal hvert tredje år sende Datatilsynet bekreftelse på at behandlingen skjer i overensstemmelse med søknaden og personopplysningslovens regler.

Datatilsynet tar forbehold om at konsesjonen kan bli trukket tilbake eller at nye og endrede vilkår kan bli gitt dersom dette er nødvendig ut fra personvernhusyn.

Dette vedtak kan påklages til Personvernemnnda i medhold av forvaltningslovens kapittel IV. Eventuell klage må sendes til Datatilsynet senest tre uker etter mottaket av dette brev.

Med hilsen

Cecilie L. B. Romøvik
seniorrådgiver

Mari Hersoug Nedberg
rådgiver
Appendix 8: The demographical questions.

1.1.2 Utdanning
Kryss av for høyeste fullførte utdanning.

Grunnskole……………………… ☐  Videregående skole…………… ☐
Fagbrev/fagutdanning …………☐  Høyskole/universitet inntil 4 år ☐
Høyskole/universitet mer enn 4 år ☐  Annet………………… ☐ Ev.hva:___________

1.2 Arbeid og arbeidshelse

1.2.1 Arbeidsplass:________________________________________________________

1.2.2 Type arbeid/stilling:___________________________________________________

1.2.3 Stillingsstørrelse:_____________________________________________________

1.2.4 Hvordan er arbeidet organisert  Bare dagarbeid ☐

Bare nattarbeid ☐

Turnus ☐

1.2.5 Nærmeste arbeidsleder:________________________________________________

1.2.6 Har du i løpet av de siste 12 månedene hatt sykefravær

Ja  nei

med egenmelding? ☐ ☐
1.2.7 Hvis ja, hvor lenge til sammen

<table>
<thead>
<tr>
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<td>2 uker eller mindre</td>
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<td>2 – 8 uker</td>
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<td>mer enn 8 uker</td>
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Appendix 9: Questions about pain intensity

2.20 Hvor mye fysiske smerter har du når smertene er på det verste?

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
0 1 2 3 4 5 6 7 8 9 10
Ingen smerter Uutholdelige smerter

2.21 Hvor mye fysiske smerter har du når smertene er på det svakeste?

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
0 1 2 3 4 5 6 7 8 9 10
Ingen smerter Uutholdelige smerter

2.22 Hvor mye plager de fysiske smertene deg?

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
0 1 2 3 4 5 6 7 8 9 10
Ikke noe plaget Svært mye plaget
Appendix 10: SOC-13

DEL 5

OAS (Opplevelsen av sammenheng) spørreskjema – 13 punkts kortversjon


5.1 Opplever du at du er likegyldig til det som skjer i omgivelsene dine?

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Veldig sjelden                                      Veldig  
eller aldri                                          ofte

5.2 Har du opplevd at du er blitt overrasket over oppførselen hos personer du trodde du kjente godt?

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</table>

Det har aldri                                      Det hender  
hendt                                             alltid
5.3 Har det hendt at personer du stoler på har skuffet deg?

1 2 3 4 5 6 7
□ □ □ □ □ □ □

Det har aldri hendt

Det hender alltid

5.4 Inntil nå har livet mitt:

1 2 3 4 5 6 7
□ □ □ □ □ □ □

Vært helt uten mål og mening

Hatt mål og mening

5.5 Føler du deg urettferdig behandlet?

1 2 3 4 5 6 7
□ □ □ □ □ □ □

Veldig ofte Svært sjelden

eller aldri

5.6 Opplever du ofte av du er i en uvant situasjon og at du er usikker på hva du skal gjøre?

1 2 3 4 5 6 7
□ □ □ □ □ □ □
5.7 Er dine dagligdagse aktiviteter en kilde til:

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

Glede og
Glede og
Smerte og
Smerte og
tilfredsstillelse
tilfredsstillelse
kjedsommelighet
kjedsommelighet

5.8 Har du veldig motstridende tanker og følelser?

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

Veldig ofte
Veldig ofte
Svært sjelden
Svært sjelden
eller aldri
eller aldri

5.9 Skjer det at du har følelser som du helst ikke vil føle?

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

Veldig ofte
Veldig ofte
Svært sjelden
Svært sjelden
eller aldri
eller aldri
5.10 Selv mennesker med en sterk personlighet føler seg som tapere innimellom. Hvor ofte føler du deg slik?

1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐

Aldri Veldig ofte

5.11 Hvor ofte opplever du at du over- eller undervurderer betydningen av noe som skjer?

1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐

Du over- eller
undervurderer
det som skjer
Du ser saken
i rett sammenheng

5.12 Hvor ofte føler du at de tingene du foretar deg i hverdagen er meningsløse?

1 2 3 4 5 6 7
☐ ☐ ☐ ☐ ☐ ☐ ☐

Veldig ofte Svært sjelden
eller aldri
5. 13 Hvor ofte har du følelser du ikke er sikker på at du kan kontrollere?

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Veldig ofte
Svært sjelden
ever aldri