

MASTER`S THESIS IN HEALTH SCIENCE

**PHYSICAL ACTIVITY, SENSE OF COHERENCE AND
FUNCTIONAL HEALTH STATUS IN INDIVIDUALS
WITH CHRONIC MUSCULOSKELETAL PAIN**

PAPER I: Sense of coherence, physical activity and functional health status in individuals with musculoskeletal pain - a health promotion view

PAPER II: Exploring the relationship between sense of coherence, physical activity and functional health status in individuals with chronic musculoskeletal pain

Elisabeth Petersen

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Thesis submitted for the Master Degree in Health Science
Department of Social Work and Health Science
Faculty of Social Science and Technology Management
Norwegian University of Science and Technology, NTNU
Trondheim, 2011

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Elisabeth Petersen

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MAIN INTRODUCTION

This thesis is a part of the project “ Målrettede rehabiliteringstiltak”, offering a multidisciplinary rehabilitation program, based on a salutogenic understanding of health, coping and illness.

This thesis consists of two papers. The first paper provides an overview of physical activity, sense of coherence (SOC) and functional health status in individuals with chronic musculoskeletal pain. The paper builds upon health promotion through a biopsychosocial and salutogenic approach. Paper two is an empirical investigation who exploring the relationship among physical activity and sense of coherence in functional health status in individuals with chronic musculoskeletal pain. Hopefully, this thesis can provide new knowledge within factors that can help individuals with chronic musculoskeletal pain to gain more understanding of their own situation

Norsk sammendrag

Denne masteren er en del av prosjektet "Målrettede rehabiliteringstiltak", som tilbyr et tverrfaglig rehabiliteringsprogram, basert på den salutogene forståelse av helse, mestring og sykdom.

Masteren består av to artikler. Den første artikkelen gir en oversikt over fysisk aktivitet, “opplevelsen av sammenheng” (OAS) og den funksjonelle helsetilstand hos personer med kronisk smerter i muskel- og skjelett systemet. Den bygger på helsefremming gjennom en biopsykososial og salutogen tilnærming. Andre artikkel er en empirisk undersøkelse som utforsker sammenhenger blant fysisk aktivitet og OAS i funksjonell helsestatus hos personer med kroniske kronisk smerter i muskel- og skjelett systemet. Forhåpentligvis kan denne oppgaven gi ny kunnskap innen faktorer som kan hjelpe personer med kroniske smerter i muskel- og skjelett systemet for å få mer forståelse for egen situasjon.

PAPER I

Sense of coherence, physical activity and functional health status in individuals with musculoskeletal pain - a health promotion view

A comprehensive overview

Elisabeth Petersen
Department Of Social Work and Health Science
Faculty of Social Science and Technology Management, NTNU

1. INTRODUCTION

1.1 General background

Musculoskeletal pain is a common problem and constitutes the largest diagnostic group who receive paid sickness allowance paid. Furthermore, it is the most frequent cause of sickness absence and disability in Norway (Andersen et al., 2009; Ihlebæk and Lærum, 2004). In 2004 musculoskeletal pain was the main diagnosis behind 46 percent of sickness absences covered by social security (Ihlebak and Lærum, 2004). Individual with generalized chronic pain are often users of health- care, and this has created a severe burden on the public health system (Steen and Haugli, 2001). One out of four Norwegians struggle with a skeletal or muscular disorder. The number also show that a higher proportion of women than men are affected, and these differences increase with age (Ramm, 2001) In addition chronic pain is a complex phenomenon that can aspects of a person`s life (Keponen and Kielhofner, 2006). Since the prevalence in individual with chronic musculoskeletal pain is high with negative psychological, economic, and social consequences, it is important to find the effect of psychosocial factors as predictors of function in daily life (Holth et al., 2008; Lillefjell et al., 2007a).

Individuals with pain in their musculoskeletal systems often report intolerance to physical activity because they associate strenuous physical movement with increased pain, and therefore avoid activities believed to produce discomfort (Hartigan et al., 2000; Verbunt et al., 2001) Chronic diseases are also responsible for limitations in individual`s abilities to perform social and physical activities (Van Weel, 1993). In several cross- sectional studies, physical inactivity has been associated with a high prevalence of chronic musculoskeletal pain (Holth et al., 2008). Additionally, research has shown that physical activity is strongly related to disability, which can lead to functional incapacity (Kivimäki et al., 2000, Melzer et al., 2004, Proper et al., 2003, Suominen et al., 2001, Veenstra et al., 2005, Verbunt et al., 2009, Vlaeyen

and Linton, 2000). Further research has also documented that individuals with chronic pain are known to be inactive, and significant levels of physical deconditioning have been found (Hartigan et al., 2000). An relationship between sense of coherence (SOC) and mental and physical symptoms (Kivimäki et al., 2000), self-rated health and every day activities (Borglin et al., 2006), and fitness (Halford et al., 2010) is also evident in the research. Lesser attention has been devoted to the association between physical activity and SOC (Kuuppelomäki and Utriainen, 2003).

Aaron Antonovsky, a professor in medical sociology, found that coping ability increases with the subjective experience of context (sense of coherence) (Antonovsky, 1987) and to create and strengthen the SOC, general resistance resources are used to create life experiences characterized by participation, coherence, and a balance between under- and overload (Antonovsky and Lev, 2000). One can say that SOC refers to an individual's internal strength and the placement to life (Antonovsky, 1979; 1987). The generalized resistance resources are therefore a part of explanation of the mystery of a living system that does not break down, that is, that maintains bio-psycho-social "integrity" (Wiesmann and Hannich, 2008). In other words, an individual's SOC strength is determined by his or her level of general resistance resources (Griffiths, 2009).

Antonovsky coined the term "salutogenesis" in contrast to pathogenesis, which is prevalent in current models of illness (Antonovsky, 1987; Weissbecker et al., 2002), and he connected the salutogenic orientation as basis for health promotion because it directs both action and research efforts to include all people (Antonovsky, 1996). However, looking at just one causative factor, paints an incomplete picture of an individual's illness and health. Moreover evidence from a study in 2004 was successfully applied to determine a better understanding of diseases and their causes, and also to obtain a better understanding for public health purpose by using the biopsychosocial model (Alonso, 2004). It is public knowledge that biopsychosocial model is the most heuristic approach to chronic pain (Alonso, 2004; Gatchel et al., 2007; Main et al., 2000). This perspective recognizes that psychological, social and biological forces act together to determine a person's vulnerability to health or illness. That is, diseases and health must be explained in terms of multiple contexts (Straub, 2007). This became increasingly clear through the transition from a biomedical to a biopsychosocial model (Engel, 1989). This model can be applied to a wide range of clinical problems, and the model can incorporate within its framework a wide range of nonclinical and clinical activities, including health promotion and prevention programs (Schultz et al., 2000).

The aim of this study is to consider the importance of an increased understanding in the relationship between SOC, physical activity and functional health status (physical fitness, feelings, social activities, daily activities and overall health), through a salutogenic and biopsychosocial approach. Underlying the choice for this theme is the high prevalence of chronic musculoskeletal pain in Norway. Further, the activity of these individuals is very important to in becoming better, and given health promotion as a helping hand they may show marked improvement. From a health promotion perspective the emphasis is placed on the individual's potential and due attention is given to the need for support that goes beyond medical health care. It is, however, relevant and essential because research on individuals with chronic musculoskeletal pain can help people to gain a better understanding of their own situation. Cooperation is established with a rehabilitation concept in central- Norway, who is based on a health-promotion view.

1.2 Literature search

The literature search for this study was conducted on computer (PubMed, Bibsys, ISI Web of Knowledge, Science Direct, Medline), and the search was limited to empirical studies in the databases, mainly in English. To substantiate the validity and reliability of the research, inclusion and exclusion criteria applied. Articles should contain and focus on one or more of the keywords, and the articles have been published since the year 2000. Some articles from the 90s have been used when a better option was not been found, or where it was important to use them. The keywords used most in the literature search are as follows: *chronic musculoskeletal pain, chronic pain, physical activity, frequency, intensity, duration, sense of coherence, salutogenic, biopsychosocial model, health promotion, Antonovsky, pain, functional health, disability, and health.*

2. THE THEORETICAL FRAMEWORK

2.1 Biopsychosocial understanding of health

The traditional view in Western medicine indicates that health is an absence of diseases, and this view is called a biological process. The biomedical model views disease as something simple, the result of exposure to a specific pathogen (Brannon and Feist, 2007). Throughout the twenties century, the biomedical model allowed medicine to control many of the diseases, but when chronic illnesses began to replace diseases that involved infectious, questions began to arise. Is the biomedical model adequate? (Ibid).

The deceased American psychiatrist, George Engel was thought to respond to and understand patients suffering, and to give them a sense of being understood. Clinicians had to attend simultaneously to the psychological, biological and social dimension of illness, and in 1977 his new model become known as the biopsychosocial model (BPS) (Borrell-Carrio et al., 2004). This model is holistic, and views that health as more than the absence of disease, it includes social, biological, psychological, and even spiritual aspects. However, it is now generally accepted that health and illness are the result of an interaction among social, biological and psychological factors (Alonso, 2004). The model has at least two advantages over the biomedical model; it views health as something positive, and it also includes psychological and social factors, and not just biological conditions (Brannon and Feist, 2007). However, the biopsychosocial model does not attempt to make room for the spiritual dimension, and recent work suggest that the model expand to include this dimension (Katerndahl, 2008).



Figure 1 : Biopsychosocial model (Engel, 1977)

The biopsychosocial model (Fig. 1) holds the belief that psychological, biological, and social processes are interactively and integrally involved in physical illness and health (Gatchel et al., 2007; Suls and Rothman, 2004). At the philosophical level it is a way of understanding how diseases, suffering, and illness are affected by multiple levels of organization from the societal to the molecular. At the practical level it is a way of understanding the subjective

experience of the patient as an essential contributor to accurate health outcomes, human care and diagnoses (Borrell-Carrio et al., 2004). The biopsychosocial view also provides an integrated model that incorporates purely physiological and mechanical processes as well as social and psychological- contextual variables that may perpetuate and cause chronic pain (Turk and Okifuji, 2002b). All behavior, including illness and states of health occur in a biological context, and health psychology draws attention to those aspects of our bodies that influence diseases and health, such as our immune, nervous, and endocrine systems (Straub, 2007). A study conducted on Icelandic adolescents found that physical activity is related to a number of different factors within a complex biopsychosocial context (Vilhjalmsson and Thorlindsson, 1998), and it is acknowledged that this model approach is essential to best practices regarding lower back pain(Allan et al., 2006). In addition chronic disability today is recognized as a biopsychosocial phenomenon (Truchon, 2001).

Further, Straub (2007) writes that the central message of health psychology is that illness and health are subject to psychological influence. On this basis, it can be said that psychological factors also play an important role in the treatment of chronic conditions, because the effectiveness of medication and treatment is influenced by the individual`s attitude (Straub, 2007) Moreover, the biopsychosocial model been instrumental in the development of behavioral cognitive treatment approaches for chronic pain (Turk and Okifuji, 2002b)

Chronic pain is a situation that confronts the sufferer not only with the stress of pain, but with many other ongoing difficulties that compromise all aspects of patient`s life. People who live with chronic pain require emotional resilience¹, because the presence of chronic pain can lead to feelings of demoralization, hopelessness, helplessness, and outright depression (Turk and Monarch, 1996). To understand people`s variable responses to chronic conditions, it is essential to consider each factor as psychological, biological and social (Gatchel, 2009; Turk and Monarch, 1996). Pain is now viewed as a complex set of phenomena rather than a specific, simple, or discrete entity (Gatchel, 2009). By using the biopsychosocial model approach, one can say it is an example of how one can look at the salutogenesis, without looking at the salutogenesis as a model in its own right (Stone and Katz, 2006).

¹ The concept of resilience is a difficult concept. There is no common specific theory or generally accepted definition. However, one common agreement is that resilience emerges when individuals faced with negative strains or life events have the capacity to mobilize protective factors or external and internal resources and stay well. Antonvsky could see the connections between the salutogenic concept and the resilience construct (Eriksson, 2007).

2.2 A salutogenetic orientation

Aaron Antonovsky was born in Brooklyn in 1923, and was a professor in medical sociology at Kunen Lunenfeld (Antonovsky, 2005). In Israel he started a research project on health care institutions, which was followed by work on multiple sclerosis, cardiovascular diseases and a number of studies on social class and various aspects of health and diseases (Ibid).

Antonovskys work in regard to social classes in morbidity and mortality plays an important role in the unification of disparities in population health (Ibid). Based on this interest, he developed the so-called salutogenic theory. He wanted to find the solution to the salutogenic question of why some people, regardless of severe hardships and major stressful situations remain healthy, while other individuals do not (Eriksson and Lindström, 2007).

The fundamental concept of salutogenetic theory is to look at health as a position on a “health ease/dis-ease continuum” (Antonovsky, 1987, page: 3), and to consider movement in a direction toward the health end (Eriksson and Lindstrom, 2006). Antonovskys reasoning from a salutogenetic perspective and approach view a sense of context or sense of coherence (SOC) as an important determinant for health (Andersson, 2009). The salutogenetic approach means that traditional perspective of health and disease is dichotomous. That means you are either healthy or sick (Ibid). Those who adopt the first position, “health”, use resources and give attention to keeping people healthy and preventing them from being sick. Those who adopt the second position, “sick”, concentrate on treating the illness, and making the patient healthy if possible (Antonovsky, 2005). Antonovksy (2005) writes further that we are all going to die, and we are all, as long as there is the least bit of life in us, in one sense, healthy. So the salutogenetic angle means that we can find out where any person, at a certain point in time, is on this continuum (Ibid). He was interested in factors that could describe our ability to manage stressors with which all people are bombarded daily, and Antonvsky defined this as the “Sense of Coherence” (Flensburg-Madsen et al., 2006). The sense of coherence (SOC) is measurable, each of us is at some point located on the SOC continuum, which can be seen on an ordinal scale, that is, the sense of coherence is an orientation, not a role- or situation-specific entity (Antonovsky, 1979). The definition for Antonovsky`s sense of coherence (SOC) is:

“The sense of coherence is 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 (comprehensibility); (2) the resources are available to one to meet the demands posed by these stimuli (manageability); (3) these demands are challenges, worthy of investment and engagement (meaningfulness)” (Antonovsky, 1987, p. 19).

This means that component comprehensibility refers to the extent to which you perceive the stimuli that confront you, and make cognitive sense of information that is consistent, ordered, structured and clear (Antonovsky, 1987). The comprehensibility is therefore the cognitive component (Lindstrom and Eriksson, 2006). People with a high sense of comprehensibility expect that the stimuli that she or he encountered in the future are predictable, when the stimuli comes as a surprise, is it possible to explain or arrange it (Antonovsky, 2005). The manageability component refers to the extent to which a person has resources at his/her disposal, sufficient to achieve certain requirements from encountered stimuli (Antonovsky and Lev, 2000). Manageability is the so-called instrumental or behavioral component (Lindstrom and Eriksson, 2006). Individuals with a high value of manageability will not feel like a victim of circumstances or feel that life treats him/her unfairly (Antonovsky, 2005). The last and third component is the meaningfulness, and it refers to the extent to which an individual believes that life makes sense emotionally, and that one possesses the desire and motivation to cope with encountered stimuli (Antonovsky, 1987; Wolff and Ratner, 1999). Meaningfulness is, therefore, the motivational component (Lindstrom and Eriksson, 2006). Individuals with a sense of meaningfulness will characterize events as positive challenges that are worth the commitment required and the emotional investment (Wolff and Ratner, 1999). An individual with a strong SOC would avert the transformation of tension to stress. The outcome is either salutary or neutral because the tension is managed adeptly (Wolff and Ratner, 1999).

These three components of SOC describe a person’s generalized resistance resources (GRRs) (Antonovsky, 1993), and this is the other key factor Antonovsky use to answer the question about how people control their lives. The question was formulated in terms of GRR and SOC (Eriksson and Lindström, 2007). Not only can this term be defined within individuals as resources bound to their capacity and person, but also to their distant and immediate environment as both non-material and material qualities from the person to the whole society

(Lindstrom and Eriksson, 2005). Therefore, GRRs refer to maintaining and developing one's health (Eriksson and Lindström, 2007) GRRs include, for example, intelligence, money, social-support, self-esteem, preventive health orientation and cultural capital. This means that individuals with these resources at their disposal have better chances of dealing with all the challenges of life (Eriksson and Lindström, 2007). Antonovsky believed that the salutogenic model could be useful for all fields of health care, particularly appropriate to health promotion (Antonovsky, 1996). He focused on health perception and believed that individuals with a strong SOC would consider themselves well even in a diseased situation (Antonovsky, 1979). Despite all these encouraging results, in addition to SOC, other concepts and theories are available to explain salutogenesis. The greatest conceptual overlap with SOC is Kobasa's "hardy personality" (Geyer, 1997). Further, the concept of SOC has been criticized for being theoretical as well as empirical, i.e. a concept that is close to health itself, especially in functional aspects, and hence does not contribute new or real understanding on how good health is maintained (Suominen and Lindstrom, 2008).

2.2.1 Salutogenesis in the context of health promotion development

Health promotion provides a framework for efforts to improve the quality of life of communities, individuals, and societies by applying a wide range of approaches and activities to achieve the desired result (Raphael, 2010). The most succinct statements of the values and principles of health promotion appear in the Ottawa Charter for health promotion (Ibid). Since the Ottawa Charter, the health promotion activities have found fertile ground, and the practice of health promotion in several countries has largely developed (Ziglio et al., 2000). The World Health Organization (WHO, 1986) *Ottawa Charter* defines health promotion as:

“The process of enabling people to increase control over, and to improve, their health”

According to the Ottawa Charter the basic policy document of health promotion is the process by which individuals and communities increase control over the decisions of health and then improve their own health in order to be able to live productive and active lives (Eriksson, 2007; Ziglio et al., 2000). The charter outlines the basic prevailing conditions for health, in line with a chiefly societal approach to promoting health such as, having shelter, peace, food, education, income, a stable ecosystem, social justice, sustainable resources, and equity (Raphael, 2010). It means that health is a resource for living, and it is placed in the context of

everyday lives with the primal concept of empowerment² (Eriksson, 2007; Kickbusch and Payne, 2003). In a salutogenic approach this implies that good health becomes a mean by which one can live an enjoyable and productive life, and explain people's health potential (Eriksson, 2007). One can also look at this definition as three phases. First one recognizes the background (determinants); secondly one sets an objective (to lead an active, productive life), and third, one is the activity (the enabling process) where the determinants are used in an argument between the enablers and the setting (Lindstrom and Eriksson, 2006). Specific segments of the population have been involved in a variety of activities aimed at gaining or improving more control over their health, people such as the young and old, women, migrants, disabled and chronically ill people (Ziglio et al., 2000). The salutogenic approach tells us that good health is a tool for an entertaining and voluminous life (Eriksson, 2007).

2.2.2 The river of health

There is a new way of demonstrating the paradigm shift provided by health promotion and salutogenesis in connection to public health and medicine, the metaphor of “the river of life” (Eriksson, 2007). Antonovsky writes that it is not enough to promote health by building bridges and avoiding stress so people do not fall into the river, because life is perpetually the time lived in the river. Instead people need to learn to swim (Eriksson, 2007). According to Antonovsky (1987; 1996), we are always in the dangerous river of life. “How well can we swim? How dangerous is our river?” (Antonovsky, 1996, p: 14). The most important questions are, what or who pushed them into the river in the first place? By using the “health in the river of life” as a metaphor, in a simple way it can describe the similarities and differences between public health (promotion and prevention), and medicine (treatment and care), shifting the focus and perspective from medicine to health promotion and public health towards population health (Eriksson, 2007; Guðmundsdóttir, 2011). In Figure 2 the different stages of health care have been illustrated as a river.

² The concept of empowerment is about giving people mastery and control over their own lives, almost identical to the process in health promotion. Empowerment is also about development of coping skills and abilities, and a democratic concept looking at the structure of process and power of professional activity and a relinquishment of the professional's power. Antonovsky also considered the concept to be political, sociological, organizational, economic, and spiritual in its character, in addition to being an individual psychological construct (Eriksson, 2007)

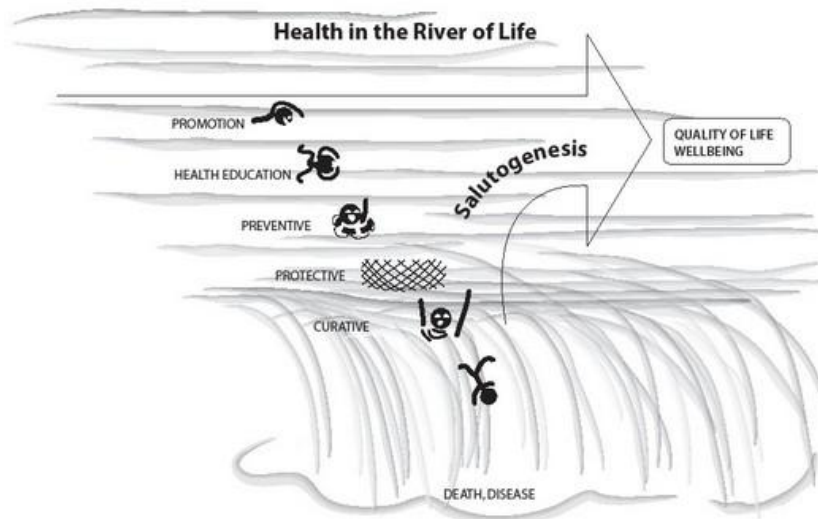


Figure 2: Health in the river of life (Lindstrom, 2008)

The idea is to improve the current definition of health by integrating the Convention on Human Rights with Antonovsky's salutogenic concept and the principles of health promotion, from the Ottawa Charter (Eriksson and Lindström, 2007). The definition is:

“Health promotion is the process of enabling individuals, groups or societies to increase control over, and to improve their physical, mental, social and spiritual health. This could be reached by creating environments and societies characterized of clear structures and empowering environments where people are able to identify their internal and external resources use and reuse them to realize aspirations, to satisfy needs, to perceive meaningfulness and to change or cope with the environment in a health promoting manner” (Eriksson and Lindström, 2007, p. 943).

2.3 The sense of coherence in promotion of health

Sense of coherence is a resource that enable people to reflect about their internal and external resources, to manage tension, to identify and mobilize, finding solutions and resolving tension in a health promoting manner (Eriksson and Lindstrom, 2006). According to Veenstra (2005), there is one research challenge in the relation between health and SOC: many of the factors that presumably promote a strong SOC are directly related to health. Since most earlier studies on health and SOC have been correlated, the extent to which health affects SOC, and the extent to which SOC predicts health remain open to debate (Kivimäki et al., 2000). It may seem to be different effects of the SOC in different aspects of health (Eriksson and

Lindstrom, 2006). Findings from previous studies are supported in indirect and direct relationships between strong SOC and perceived good health (Eriksson and Lindstrom, 2006, Kivimäki et al., 2000, Suominen et al., 2001). The stronger the SOC, the lower the number of subjective symptoms of illness and complaints (Eriksson and Lindstrom, 2006). Despite some uncertainty, SOC seems to be in a positive subjective state of development and in a health resource promoting resilience (Eriksson and Lindstrom, 2006).

The relation between health and SOC is relevant from a health promotion and public health perspective. According to Eriksson and Lindstrom (2006) SOC is strongly related to health, partly explaining it. She writes further that SOC may not be the same as health, but that it can still be an important disposition for individual's maintenance and development of their health. Antonovsky pointed out that health has to be defined and investigated separately from other dimensions of life satisfactions and wellbeing, because they have a different base in the theory (Eriksson, 2007). Antonovsky was aware of the possible relationship of wellbeing through health and SOC (Ibid).

Antonovsky suggested that SOC was developed in childhood, and that SOC is relatively stable, but the SOC could be disturbed in an individual by a particularly stressful situation. It may be an association with having a disability, such as chronic pain, and this can lead to a chronic stressor that suppresses SOC for some individuals (Antonovsky, 1987; Ravestloot et al., 1998). People with a strong SOC have the ability to manage stressful situations successfully, and people with a weak sense of coherence perceive psychological symptoms more than individuals with a strong sense of coherence (Antonovsky, 1993).

A study among older women with chronic illness in 2000 found a strong relationship between illness appraisal and SOC that is compatible with Antonovsky's (1987) theoretical framework about the sense of coherence concept. That is, the sense of coherence affects the illness appraisal, and women view their chronic health problems as propitious when their sense of coherence is strong (Nesbitt and Heidrich, 2000). Most likely, these results can be transferred to individuals with chronic musculoskeletal pain.

2.4 Physical activity in the promotion of health

Physical activity as a modern concept includes within its characteristics “any body movement”, and is multifaceted (Griffin et al., 2007). To review the literature, it is important to establish a definition of the concept “physical activity”.

Physical activity is defined as:

“bodily movement that is used by the contraction of skeletal muscle that substantially increases energy expenditure” (Caspersen et al., 1985, p. 126).

The definition implies that physical activity in the daily life can be categorized into sports, occupational, conditioning, household, or other activities. It says something about everyone performs physical activity in order to sustain life, and the amount is largely subject to each individual's personal choice, and may vary from individual to individual as well as for a given person over time (Caspersen et al., 1985). Physical activity is not a synonymous term, but a total amount of total energy expended, as duration, intensity and frequency. The total amount is a function of its duration, intensity and frequency (Haskell et al., 2007). In general, activity has a greater effect the longer it lasts, and it is possible to divide the daily activity (Bahr, 2009).

A long and healthy life, is probably at the top of everyone's wish list, and the hope of living longer is becoming a reality for the majority of people (Griffin et al., 2007). Physical activity can, therefore, play an influential role in improving the chances to become healthier and live longer. A higher level of physical activity is associated with lower mortality rates for both younger and older adults (Griffin et al., 2007). The most important message in relation to regular physical activity, is that the prevailing conditions are different from individual to individual. Physical activities must therefore be adapted to the circumstances (Bahr, 2009).

Evidence of an association between physical activity and several health outcomes and diseases is strong (Griffin et al., 2007). Documentation from the Chief Medical Officer for England's report, writes that adults who are physically active have a 20-30 percent reduced risk of developing major chronic health problems such as obesity, diabetes, cardiovascular diseases and musculoskeletal problems. It can also help to reduce recurrence of lower back pain and osteoarthritis (Anderssen, 2009; Griffin et al., 2007). Several randomized controlled studies also show the effect benefits of resistance training on muscle strength among frail elderly persons (Keysor, 2003; McGuire et al., 2001). From a health promotion view, physical

activity is increasingly important because of the prevalence of inactivity in the population (Griffin et al., 2007). It is known inactivity among adult population, and can cause obesity and lack of energy (Bahr, 2009). One in four men and one in three women reach the guideline level of activity as required to achieve health benefits (Ibid). The guidelines are as follows,

“Physically inactive adults are recommended to exercise at least 30 minutes of moderate physical activity intensity every day. The activity can be divided into smaller blocks with physical activity during the day, such as 5-10 minutes duration”
(Anderssen, 2009, p. 9).

Physical activity is an important public health tool in the prevention and treatment of various physical diseases, and in some psychiatric diseases such as anxiety and depressive disorders (Peluso and Andrade, 2005). Physical activity is recommended to the general population by many medical entities (Ibid), such as the American College of Sports Medicine (ACSM) (Stand, 1998). In addition, physical activity has been increasingly recommended to individuals with or without diseases in order to improve their quality of life (Peluso and Andrade, 2005). However, the benefits of physical activity do not come without risks, particularly when vigorous exertion is undertaken suddenly by previously sedentary or untrained persons (Maron, 2000; Melzer et al., 2004). Physical activity is directly related to health and produces a number of health benefits; engagement in activity is recommended on a daily basis. There is agreement that regular participation in exercise and physical activity results in positive health related outcomes (Melzer et al., 2004).

Several review studies on dose-response relationships between health and physical activity conclude this positive association, and people who are physically active at a sufficient level achieve a wide array of mental and physical health benefits compared to those people who are not active (Morken et al., 2007; Proper et al., 2003; Proper et al., 2006; Warburton et al., 2006). Evidence also indicates that physical activity has a great influence on body composition and energy balance (Miles, 2007). However, despite the evidence, a study of adolescents on physical activity and health, shows that physical activity is a complex behavior, influenced not only by activity levels, but also by environment, personal, socio-demographic, and behavioral variables (Hallal et al., 2006). Findings from a previous study also indicate that psychological, physical, and socioeconomic variables play a major role in how individuals experience chronic musculoskeletal pain (Lillefjell et al., 2007a).

Non- pharmacological treatment for individuals with chronic pain aims to enhance activity, body functions and overall health. The two most common non-pharmacological treatments are educational programs and exercise, where both require the active involvement and participation of a patient (Mannerkorpi and Henriksson, 2007). Physical inactivity by chronic musculoskeletal complaints is associated with overweight, more sick leave, low socio-economics status, increased mortality, and increased risk of cancer (Holth et al., 2008), and in some cross-sectional studies, physical inactivity has been associated with a high prevalence of musculoskeletal complaints (Holth et al., 2008). This indicates that physical activity plays an important role in the prevention of musculoskeletal pain (Miranda et al., 2001; Morken et al., 2007). The interest in the positive effects of physical activity on well-being and health is increasing, and several experts have found an association between lower risk of musculoskeletal disorders and physical activity (Hildebrandt et al., 2000).

There is no longer a subject debate that people who are physically active obtain a wide array of health benefits, both mental and physical, and people who have a low level of physical activity are likely to incur unfavorable health outcomes (Bouchard et al., 2007; Morken et al., 2007; Proper et al., 2003; Warburton et al., 2006).

2.5 Function in promotion of health

Functional health is defined as:

“the ability of a persons to perform and adapt to the individual’s given environment, measured both objectively and subjectively over a stated period of time” (Van Weel, 1993, p. 96).

One can say that functional status is an aspect of health which involves the quality of life, and the functional health status covers the domains of physical (fitness and daily activities), mental (feelings), social (social contacts), and overall health (Weel et al., 1995).

Based on the theory of musculoskeletal disorders/pain, health and physical activity, it appears that people with musculoskeletal pain often report unwanted reduction in their daily activity level and function, daily physical activities are low or non- existing in people with these pains (Verbunt et al., 2009). This impact of pain on a individuals daily functioning is generally expressed as a level of disability³ (Verbunt et al., 2001). Thirty percent of individuals with

³ The concepts “disability” and “activity” share many similarities. They both reflect the impact of pain on daily functioning, but they are not identical (Verbunt, J., et al, 2001).

shoulder, neck or back pain may be expected to report some limitations in their daily life (Denison et al., 2004), and an immediate consequence of this avoidance and limitation is that daily activities expected to produce pain are no longer accomplished leading to increased disability. Just like other forms of anxiety and fear, pain interferes with cognitive functioning (Crombez et al., 1999). Moreover, chronic widespread pain and musculoskeletal disorders vary in their clinical expression, and both have a major effect on function and health (Brockow et al., 2004). A study of six subjects with chronic lower back pain showed that improvement in catastrophic pain and pain-related fear occurred during the exposure in vivo⁴ and not during the graded activity (exercise), irrespective of the treatment order (Vlaeyen et al., 2002).

Therefore, while pain is given as a primary reason for restricting physical activity, evidence supporting this statement is lacking in the literature. Some data suggest that actual pain is more highly related to functional activity, than the anticipated pain. There is also a suggestion in the literature that it is a delay between the experience of pain, and functional activity (Geisser et al., 2003). Further, in another study conducted 1996 among individuals with chronic lower back pain, it was also found that anticipated pain, rather than actual pain experienced during the activity was highly related to functional performance (Crombez et al., 1996). Studies has also shown an association among chronic diseases, anxiety and depression (Janowski et al., 2010, Manchikanti et al., 2002)

3. GENERAL DISCUSSION

The theoretical idea of approaching physical activity, Sense of Coherence, functional health status and chronic musculoskeletal pain from a health promotion view, could lead to increased knowledge and understanding. To understand people's responses to chronic conditions, it is essential to consider each factor as psychological, social and biological (Gatchel, 2009), and by using the biopsychosocial model, one can say that this is an example of how one can look at the salutogenesis (Stone and Katz, 2006). Based on the salutogenic theory, the biopsychosocial model incorporates complex elements in the health-promotion view. This might help to understand and explain the situation in individuals with chronic musculoskeletal pain.

⁴ Based on Pavlovsk theory about association among stimuli being learned and anticipated. It is viewed today as a cognitive process during which catastrophic expectations and fear is are present causing challenges and discomfort, resulting in reductions of the threat value of the originally fearful stimuli (Vlaeyen et al., 2002).

In sum and based on the theory, the findings show that regular physical activity is characterized as a positive health promotion having many physiological benefits. Several studies indicate a consistent association between enhanced psychological well-being and regular physical activity (Hassmén et al., 2000; Rütten et al., 2001). Actually, physical activity can be related to health promotion, rehabilitation and disease prevention, because it has a positive impact on indicators within traditional public health such as morbidity and mortality as well as quality of life and social well-being (Rütten et al., 2001). However, physical activity as a positive health promotion with many health benefits might not necessarily have the same positive health effects on individuals with chronic musculoskeletal pain. Studies have not clarified whether chronic pain is a consequence or a cause of physical activity.

Findings from previous studies support an indirect and direct relationship between strong SOC and perceived good health (Eriksson and Lindstrom, 2006; Kivimäki et al., 2000; Suominen et al., 2001). The study view results from the previously mentioned study of Hassmén (2000) found that individuals who are more active, perceived their sense of coherence to be significantly higher than those who were less active (Hassmén et al., 2000). Further, the same results were found in a review aimed at health care students, from a longitudinal study in the general population in Sweden and from a cross sectional, population based cohort study (Kuuppelomäki and Utriainen, 2003; Nilsson et al., 2003, Wainwright et al., 2007). On the basis of this, one would think that this may also apply to individuals with chronic musculoskeletal pain.

Previous studies indicate that individuals with chronic musculoskeletal pain often report unwanted reduction of their daily activity level and function (Verbunt et al., 2009). Research has also been able to predict pain and function and overall health in association to SOC, in some chronic illnesses (Caap Ahlgren and Dehlin, 2004; Veenstra et al., 2005). Another study showed a weak correlation between the physical functioning and SOC (Drageset and Ellingsen, 2010). In addition, an association between SOC and health is well-established, but has not been heavily researched in individuals with chronic illness (Gallagher et al., 2008). Further, a study in the relationship between SOC and health domains in individual with chronic pain supported SOC theory over a two year period. The SOC construct significantly enhanced levels of participation and body function, and conversely, the level of body function had contributed to SOC two years earlier (Veenstra et al., 2005).

Bad health function and chronic pain have also shown significant association with many environmental factors (Lillefjell et al., 2007b). Findings from previous studies with chronic pain suggest that contextual and psychosocial factors can contribute to disability, but pain is often a significant predictor of functional disability (Gauntlett-Gilbert and Eccleston, 2007; Turk and Okifuji, 2002a). Taken together previous research, this illustrates the complexity in chronic pain.

4. CONCLUSION

Building upon the biopsychosocial model (Gatchel et al., 2007; Straub, 2007; Truchon, 2001), and Antonovsky's salutogenetic theory (Antonovsky, 1979; 1987; 2005), the aim of this paper was to explore the relationship among sense of coherence, physical activity, and functional health in individuals with chronic musculoskeletal pain. To prevent the most frequent cause of sickness absence and disability in Norway, there is a great need to understand why and how people develop chronic ailments such as musculoskeletal pain. There has been a lot of research and an agreement regarding physical activity and its association to chronic pain (Mannerkorpi and Henriksson, 2007; Morken et al., 2007; Peluso and Andrade, 2005). Some support exist for the relationship between SOC and physical activity in a normal population (Kuuppelomäki and Utriainen, 2003; Wainwright et al., 2007), and there is also support for prediction of function, SOC and physical activity in some chronic illness (Caap Ahlgren and Dehlin, 2004; Veenstra et al., 2005; Vlaeyen and Linton, 2000). Despite an increased interest in physical activity, SOC and functioning, there have been relatively few studies conducted on the existing relationship among physical activity, sense of coherence and functional health status in individual's with pain before rehabilitation. However, such knowledge is important because of the growing problem of chronic musculoskeletal pain in Norway (Andersen et al., 2009), and, therefore, the need exists to better understand the situation and to improve the theory. Specifically, it is important to be able to see this in light of the salutogenic and biopsychosocial approach in a health promotion view.

The research problems for the next paper will be:

1. Is there a relationship between physical activity, and sense of coherence (SOC) in individuals with chronic musculoskeletal pain?
2. Can physical activity and sense of coherence (SOC) explain the functional health status in individuals with chronic musculoskeletal pain?

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PAPER II

Exploring the relationship among sense of coherence and physical activity in functional health status in individuals with chronic musculoskeletal pain

ELISABETH PETERSEN
DEPARTMENT OF SOCIAL WORK AND HEALTH SCIENCE
FACULTY OF SOCIAL SCIENCE AND TECHNOLOGY MANAGEMENT,
NTNU

Abstract: The present article reports results from data collected of a project called “ Målrettede rehabiliteringstiltak”, among individuals with chronic musculoskeletal pain. The purpose was to measure the group differences in sense of coherence (SOC) between those who practicing high and low degrees of physical activity, and to measure the significant relationship among physical activity and SOC in functional health status (physical fitness, feelings, daily activities, social activities, overall health) in individuals with chronic musculoskeletal pain. Results showed group difference in SOC between those who practicing high and low degree of frequency. In addition, it was found relationship between SOC and feelings, daily activities, social activities and overall health. Significant relationship was also found between frequency and physical fitness, and between intensity and frequency in overall health.

1. INTRODUCTION

People with musculoskeletal pain constitutes the largest diagnostic group, and it is the most frequent reasons for disability pension and sick leave in Norway (Hagen, 2009; Ihlebæk and Lærum, 2004; Steen and Haugli, 2001). In Norway, a myth about musculoskeletal pain still live among the public, even as it has been abandoned by health professionals. This myth represents passive coping strategies and pain avoidance beliefs that may hinder spontaneous recovery from musculoskeletal pain (Werner et al., 2005). Many individuals with chronic musculoskeletal pain often report an intolerance for physical activity, and a reduction of their daily activity level and function (Verbunt et al., 2001). Chronic pain and fear of pain are an important contributor to disability. It is believed that pain over time leads to an avoidance of activities or situations where one expected to feel pain. A number of studies support the contention that fear of pain lead to decreased activities in daily life (Gatchel, 2004; Geisser et al., 2000). In addition, chronic disability today is recognized as a biopsychosocial phenomenon, and this perspective might help us to understand people`s responses to chronic conditions by considering each psychological, biological and social factors that helps to create it (Gatchel, 2009; Straub, 2007; Truchon, 2001).

Previous research on a number of chronic diseases, conditions and physical activity, has been shown to be useful tool to lessen concerns and excessive fear and slightly effective in to decreasing pain. However, there is no evidence to suggest that exercise increases the risk of future degeneration (Hayden et al., 2005; Rainville et al., 2004). Furthermore, there is strong evidence of an association between several health outcomes and physical activity. From a health promotion view an increase in physical activity is important because of a prevalence of inactivity in the population (Griffin et al., 2007). Previous research has also reported that fear-avoidance beliefs about physical activity are strongly related to disability, and this can lead to a decreasing daily activity level, and possibly resulting in functional incapacity (Vlaeyen and Linton, 2000).

Chronic pain and poor health function have also shown significant association with many environmental factors (Lillefjell et al., 2007b). Findings from previous studies with chronic pain suggest that contextual and psychosocial factors can contribute to disability, both above and beyond pain intensity, but pain is often a significant predictor of functional disability (Gauntlett-Gilbert and Eccleston, 2007; Turk and Okifuji, 2002). Individuals with chronic pain may also experience restriction in their function as a result of a range of emotions, memories, thoughts and physical sensations (McCracken et al., 2007). Since the prevalence in individual with chronic musculoskeletal pain is high, it is important to determine how the effect of psychosocial factors as predictors of function in daily life (Holth et al., 2008; Lillefjell et al., 2007a)

Previous research has shown a relationship between sense of coherence (SOC) and various aspects of good perceived health and well-being (Eriksson et al., 2007, Kivimäki et al., 2000; Suominen et al., 2001). SOC refers to an individual's internal strength and the placement within life. The concept of SOC is embedded in the theory of "salutogenic" process, and focuses on how people stay healthy rather than the cause of illness (Antonovsky, 1979; 1987). He believed that the salutogenic model could be useful for all fields of health care, and particularly appropriate for health promotion (Antonovsky, 1996). SOC is defines as;

“The sense of coherence is a global orientation that expresses the extent to which one has pervasive, enduring though dynamic, feelings 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“ (Antonovsky, 1987, p. 19)

The three components are called (1) comprehensibility, (2) manageability and (3) meaningfulness. These three components describes a person`s general resistance resources (GRR), and are used to create life experience (Antonovsky and Lev, 2000). SOC as a resource make it possible for people to identify, manage tension, and mobilize the GRRs to promote effective coping by finding certain solutions to specific problems.

SOC has been related to disabilities, diseases, and symptoms including health dysfunction, complains and distress (Kivimäki et al., 2000). Further, SOC appears to be strongly associated with perceived good health at least among individuals scoring high on SOC. The relationship between physical health and SOC seems to be weaker and more complex than with mental health (Eriksson, 2007; Eriksson and Lindstrom, 2006). However, there have been some consistent findings that individuals who exercised more perceived their SOC to be significantly higher than the individuals who exercised less (Hassmén et al., 2000; Kristensson and Öhlund, 2005; Kuuppelomäki and Utriainen, 2003; Myrin and Lagerström, 2006). In addition, younger persons reported a higher SOC than the older individuals (Hassmén et al., 2000). Although the benefits of regular physical activity, and its function in promotion of health are well accepted, and the SOC measure is strongly connected to health, the relationship between physical activity, SOC and function is largely unexplored. Moreover, to the authors knowledge that no research has been found able to show relationship between individuals perceiving their SOC to be higher according to an increase in intensity and duration of physical activity.

The objectives of the present study are to investigate the group difference in SOC between those who practicing high and low degrees of physical activity (frequency, intensity, duration) in individuals with chronic musculoskeletal pain. This study also examined the relationship among physical activity and SOC in functional health status, like physical fitness, feelings, daily activities, social activities and overall health in individuals with chronic musculoskeletal pain. The study predicted that there would be a group difference bin SOC between those who practicing high and low degree of physical activity (frequency, intensity, duration), and that

there would be relationship among physical activity and SOC in functional health status. Building upon a biopsychosocial and salutogenic as an approach to health promotion, the empirical findings are discussed.

The hypothesis is as follow:

Hypothesis 1: There is a group difference in SOC between those who practicing high and low degrees of physical activity (frequency, intensity, duration) in individuals with chronic musculoskeletal pain

Hypothesis 2: Physical activity (frequency, intensity, duration) and SOC are significantly associated with functional health status (physical fitness, feelings, daily activities, social activities, overall health) in individuals with chronic musculoskeletal pain

2. METHOD

2.1 Subjects and Procedures

The present study included data from a rehabilitation center in central- Norway, offering a multidisciplinary rehabilitation program based on a salutogenic understanding of health, coping and illness. The subjects consisted of 363 (75.8 % females) men and women, in the age of 21 – to 64 with chronic musculoskeletal pain. The participants were included in a multidisciplinary rehabilitation program for 6 to- 12 weeks. Inclusion criteria for the study were absent from work due to pain in the musculoskeletal system for more than three months. This program is work- oriented rehabilitation, an initiative through NAV. The participants were assigned to rehabilitation by their medical doctor based on observations, interviews, and clinical tests. The data were collected in 2003-2009. The target group is people on sick leave and /or persons with reduced working capacity due to complex musculoskeletal disease conditions.

A questionnaire of self- reported measures was given to the participants, before, during and after the rehabilitation program. The present study used baseline data before the participants entered rehabilitation. The participants are informed about the voluntary nature of participation and the anonymity in the investigation. The study is a part of the project “Målrettede rehabiliteringstiltak”, approved by the Regional Medical Ethical Committee of

Mid-Norway (REK) (see appendix A). The Data Inspectorate has granted a license for the establishment of the databank at the rehabilitation unit (see appendix B). All participants gave their informed consent (see appendix C) and were volunteers. Confidentiality was emphasized.

2.2 Measures

2.2.1 Sense of Coherence (SOC)

In the present study SOC-13(see appendix E) has been used, the short version of Antonovsky's SOC-scale (1987). In its operational format the scale was called "The Orientation to Life Questionnaire". The questionnaire predicts a positive outcome from a long term perspective, and the face validity of SOC seems to be acceptable (Eriksson and Lindstrom, 2006, Eriksson, 2007). Evidence for feasibility, validity and reliability in SOC- 13 has been found in analysis of the, SOC-13 from 20 countries, translations into 14 languages among adults of all ages, all social classes, and adolescents. Cronbach's coefficient alpha measure of internal consistency has ranged from 0.74 to 0.91 in studies using the SOC-13 scale, and appears to be an applicable instrument measuring how people manage stressful situations and stay healthy (Do Carmo Matias Freire et al., 2001, Eriksson, 2007, Eriksson and Lindström, 2005). The scores on SOC-13 scale, range from 13- to 91 points (Eriksson, 2007). All measures used in SOC-13 were scored on a 7-points scale (1=*very rarely*; 7=*very often*). The 13 items scale describes the motivation, instrumental/ behavioral, and the cognitive behavior in the person (Antonovsky, 1979, 1987). The questions have an ordinal response format with a firm foundation phrases. SOC-13 has a single summated rating scale; in addition the items are also clustered into three underlying constructs (meaningfulness, comprehensibility and manageability).

Meaningfulness consists of four items (1) describing the extent to which a person feels that life makes sense emotionally, (2) demands and problems are worth investing energy in, are worthy engagement and commitment, and (3) demands are seen as challenges rather than burdens (Lindstrom and Eriksson, 2005). An example of a sample item is "Do you have a feeling that you don't really care about what goes on around you?".

Comprehensibility was measured by five items describing the extent to which a person perceive the stimuli that confront them, deriving from the external and internal environment, as making cognitive sense as information that is consistent, structured, ordered and clear

(Lindstrom and Eriksson, 2005). One question that measures this is: “Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?”.

Manageability was assessed by four items describing the extent to which person perceives that the resources at their disposal are adequate to meet the demands posed by the stimuli that bombards them (Lindstrom and Eriksson, 2005). Example, “How often do you have feelings that you’re not sure you can keep under control?”.

According to Antonovsky these three components are dynamically interrelated to one another (Feldt and Rasku, 1998). These intercorrelations have also been found in previous research (Bernabé et al., 2009). On the basis of these correlations, all three components are put together to create a combined measurement, called sum SOC. The internal consistencies for all the 13 items were satisfactory with $\alpha \geq 0.81$.

2.2.2 Physical activity

Physical activity level was determined using standardized questions similar to question used in North- Trøndelag Health survey (HUNT), in order to find the total amount of exercise that the participants did. Participants reported their exercise based on, walking, skiing, swimming or conduct training/sports, and the physical activity was measured three levels at; intensity, duration and frequency. In the questionnaire the participants reported on a scale from 1-5 for how many times a week they used to exercise (frequency): “*never,*” “*less than once a week,*” “*ones a week,*” “*2-3 times a week,*” and “*almost every day*”. On a scale from 1-3 they reported the intensity of they the exercise: “*taking it easy without becoming breathless or sweaty,*” “*take it so hard that I get breathless and sweaty,*” and “*takes me almost completely out*”, and at last on a scale from 1-4, for how long (duration): “*less than 15 minutes,*” “*16-30 minutes,*” “*30 minutes- 1 hour,*” and “*more than 1 hour*”. The score was divided into (0=*high* and 1=*low*) in the correlation and the independent sample t-test, in order to answer hypothesis 1. In the multiple regression analysis, the score went from zero and up (very little to too much) to ease interpretation.

2.2.3 Functional health status assessment (COOP/WONKA)

Functional status of health was registered on COOP/WONCA (see appendix D) chart using a Norwegian translation (Natvig et al., 2001). Each level was illustrated numerically and pictorially, and the charts measures six levels of functional health: physical fitness, feelings,

daily activities, social activities, changes in health (not included in this study), and overall health. The items range from 1 to 5. A score of 1 indicates (“*no limitation at all,*”) and a score of 5 indicate (“*maximum functional limitation*”). In this study the variables are reversed and the lowest number is zero to ease interpretation. The internal consistencies for all the 5 items were satisfactory with $\alpha \geq 0.68$.

2.2.4 Control variables

Control variables were also used in the present study to control for possible confound, like gender, age, pain intensity and education. The control variables of gender were coded as a two-level categorical variable (0= *female*, 1= *male*). Pain intensity is categorized from 0 to 10 (0= *no pain*, 10= *unbearable pain*), and education was categorized in five levels from 0 to 4 (0= *primary school* and 4 = *university/college > 4 years*).

2.3 Statistical analysis

Data analyses were performed with SPSS for windows (version 17.0). Descriptive statistics were applied to obtain the mean, SD and percent. The reliability was tested by using Cronbach’s α reliability coefficient. Pearson’s r correlation were used to compute differences in the frequencies of the variables. P values of 0.05 or less were interpreted as statistically significant for all analyses.

Baseline data were compared with correlation analysis, using Pearson’s r , between sense of coherence (SOC), pain intensity, gender, age, education, functional health measures (physical fitness, feelings, daily activity, social activity, overall health) and physical activity (frequency, intensity and duration), where physical activity was coded into two categories, high and low (dichotomized). Furthermore, the first hypothesis were examined for group differences by an independent sample t-test for the continuous variables. SOC was used as dependent variable, and physical activity (high- low) was used as the independent variables. Multiple linear regression analysis was performed to examine the second hypothesis and to determine the relationship of physical activity and sum SOC on the estimating in functional health status (COOP/WONCA). These analyses were carried out to identify whether physical activity and sense of coherence can explain the function. Control variables where also included to control for possible confounding. The first step included age, gender, education and pain intensity as control variables. In the second step, physical activity (frequency, intensity and duration) were entered, holding the control variables constant. In the final step, sum SOC was entered,

holding the two previous models constant. Thus, these steps assessed the unique explained variance and effect among physical activity (frequency, intensity, duration) and SOC in functional health status (physical fitness, feelings, daily activities, social activities and overall health).

3 RESULTS

3.1 Descriptive results

The sample (N= 363) had a mean age of 44.72 (SD =9.90) ranging from 21 to 65, and the mean SOC was 64.64. Only 24, 2 % (n=88) of the participants have college/university educations of up to four years or more. Further, there were an average on pain intensity experience of 6.62 (SD= 2.52). The mean measures of functional health status (COOP/WONCA), were, physical fitness; 2.37; feelings; 1.96; daily activities; 2.09; social activities; 2.52; and overall health; 1.79.

Table 1 shows the mean, standard deviations (SD), and Pearson`s r of the study variables. As we can see there are a negative, significant, low correlation between SOC and frequency, physical fitness, daily activities and overall health. Between the domain intensity and physical fitness, feelings and daily activities there are a negative, significant, low correlation. Furthermore, the correlation between duration and physical fitness and daily activities were low, negative, but significant. As we also can see, SOC has a positive, significant and high correlation to feelings and social activities, while there is a positive, significant and low correlation between SOC and daily activities and overall health. No other significant correlations were found.

3.2 Independent Sample t-test

In order to explore group differences in SOC between those who practicing high and low degrees of physical activity (frequency, intensity, duration), an independent sample t-test is used to see if there were any significant difference. The group were significantly different in SOC between those who practicing high and low frequency ($F=.66$, $df= 361$, $p< 0.05$). This means that a high frequency predict a stronger SOC. There were no significant difference in SOC between those practicing high or low intensity and duration. This means that hypothesis 1 was partly supported, as there is no group difference between the other physical activity domains (intensity and duration) and SOC.

Table 1 Means (M), standard deviations (SD), and Pearson`s r of the study variables (N=363)

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.Age	44.72	9.90												
2.Gender	.24	.42	-.01											
3.Education	1.62	1.15	-.08	-.16**										
4. Pain Intensity	6.62	2.52	-.03	-.02	-.12*									
5. Frequency	.38	.48	.05	.09	-.07	-.04								
6. Intensity	.42	.49	.10	.03	-.16**	-.03	.15**							
7.Duration	.24	.43	.05	.02	-.20**	.05	.23**	.37**						
8.SOC	64.64	10.09	.23**	.02	-.03	.11*	-.11*	.06	.05					
9. Physical F	2.37	.95	-.09	.11*	.11*	-.17**	-.17**	-.24**	-.27**	.04				
10. Feelings	1.96	1.17	.10	.13*	-.02	.14**	-.07	.12*	.08	.57**	-.01			
11. Daily A	2.09	.98	-.05	.00	.11*	-.22**	-.13*	-.14*	-.18**	.16**	.30**	.26**		
12. Social A	2.53	1.16	.06	.11*	-.06	-.04	-.07	-.07	-.04	.40**	.17**	.41**	.46**	
13. Overall H	1.79	.77	.06	.08	.02	-.20*	-.17*	-.11	-.08	.29*	.27**	.41**	.48**	.40**

Note: SOC= sense of coherence, Physical F=physical fitness, Daily A=daily activities, Social A= social activities

* $p < 0.05$; ** $p < 0.01$

3.3 Multiple linear regression

In order to analyze whether physical activity and sense of coherence has an effect on functional health (COOP/WONCA), hierarchical multiple linear regression analyses were separately performed for five of the functional health status measurements (physical fitness, feelings, daily activities, social activities and overall health). Age, gender, education and pain intensity were entered as control variables in the first step. The second block consisted of physical activity (frequency, intensity, duration). Sum SOC was included in the third and final step. As shown in Table 2, including all the variables, physical fitness showed a significant relationship to intensity ($b = .24, p < 0.01$) and the control variables education ($b = .12, p < 0.05$) and pain intensity ($b = -.12, p < 0.05$). Furthermore the dependent variable feelings showed a significant relationship to sum SOC ($b = .57, p < 0.01$), and significant relationship to the control variables, like age, gender, and pain intensity in the first and second step, with modifications by the inclusion of other variables. Daily activities and sum SOC also showed a significant relationship ($b = .22, p < 0.01$), as well as daily activities and control variable pain intensity ($b = .26, p < 0.01$). Social activities showed a relationship to sum SOC ($b = .41, p < 0.01$), and to gender in the first and second step ($b = .13, p < 0.05$). Furthermore, in the third step there were a significant relationship to education ($b = -.07, p < 0.05$) and pain intensity ($b = -.13, p < 0.05$). Finally, overall health showed a relationship to frequency ($b = .11, p < 0.05$), intensity ($b = .15, p < 0.05$), and to sum SOC ($b = .33, p < 0.01$). There was also a relationship to the control variables, gender ($b = .11, p < 0.05$) and pain intensity ($b = -.30, p < 0.01$). This means that hypothesis 2 is partly supported, as there are some significant relationships between the variables.

Table 2 Multiple linear regression analysis with functional health measurements as the dependent variable (N=363)

	Physical fitness			Feelings			Daily activities			Social activities			Overall health		
	B	ΔR^2	β	B	ΔR^2	β	B	ΔR^2	β	B	ΔR^2	β	B	ΔR^2	β
Step 1:															
Constant	2.81			.69			2.77			2.46			2.06		
Age	-.00		-.06	.02		.13*	-.01		-.05	.01		.06	.01		.06
Gender	.21		.09	.45		.17*	.04		.02	.35		.13*	.21		.11*
Education	.10		.12*	.05		.05	.10		.11	-.04		-.04	.02		.03
Pain i.	-.50	.04	-.12*	.07	.06	.15*	-.09	.15	-.22**	-.03	.03	-.07	-.08	.08	-.24**
Step 2:															
Constant	2.01			.77			2.18			2.13			1.58		
Age	-.00		-.03	.01		.12*	-.00		-.21	.01		.07	.01		.08
Gender	.21		.10	.47		.18*	.03		.02	.35		.13*	.23		.12*
Education	.05		.06	.07		.07	.06		.08	-.06		-.06	.00		.00
Pain i.	-.05		-.14*	.07		.15*	-.09		-.23**	-.03		-.07	-.08		-.25**
Frequency	.07		.07	.09		.07	.05		.04	.04		.03	.12		.14*
Intensity	.41		.24**	-.15		-.07	.17		.09	.11		.05	.20		.14*
Duration	.14	.13	.11	-.12	.08	-.07	.15		.11	.06	.04	.04	-.01	.11	-.01
Step 3:															
Constant	1.63			-2.38			1.17			-.14			.33		
Age	-.00		-.04	.00		-.01	-.01		-.07	-.00		-.02	.00		.01
Gender	.21		.10	.41		.15*	.02		.01	.32		.12	.21		.11*
Education	.05		.06	.04		.04	.06		.07	-.07		-.07*	-.01		-.01
Pain i.	-.06		-.15	.03		.07	-.10		-.26**	-.06		-.13*	-.09		-.30**
Frequenc	.07		.06	.04		.03	.03		.03	.06		.00	.10		.11*
Intensity	.42		.24**	-.08		-.03	.19		.11	.16		.07	.23		.15*
Duration	.14		.11	-.13		-.08	.15		.11	.05		.03	-.02		-.01
SOC	.01	.14	.09	.07	.38	.57**	.02		.22**	.05	.19	.41**	.03	.21	.33**
R ²	.12			.36			.12			.17			.19		

Note: $\Delta R^2 = R^2$ change; represents the incremental proportion of variance accounted by the set of variables entered at that step

B= Unstandardized Coefficients, β = Standardized Coefficients

Levels of significance: * = $p < 0.05$, ** = $p < 0.01$.

4. DISCUSSION

The purpose of the study was to investigate group difference in SOC between those who practicing high and low degrees of physical activity (frequency, intensity, duration) and explore the relationship between sense of coherence and physical activity (frequency, intensity, duration) in functional health status (physical fitness, feelings, social activities, daily activities and overall health) in individual with chronic musculoskeletal pain. The major findings of this study suggest a group difference between high and low frequency in SOC, and SOC and physical activity showed some significantly relationships in the functional health dimensions.

4.1 Sense of coherence (SOC) and physical activity

The hypothesis is partly supported in line with hypothesis 1 about group differences in SOC between those who self-report high and low levels of physical activity (frequency, intensity, duration) among individuals with chronic musculoskeletal pain. Results showed that individual`s with chronic musculoskeletal pain who had a high frequency of physical activity had an significant difference in sum SOC. The hypothesis therefore suggests that an individual with high frequency, also predict a stronger SOC. This result also reflects previous studies including the same variables in the normal population, where a relationship has been found between frequency and a strong SOC (Kristensson and Öhlund, 2005; Kuuppelomäki and Utriainen, 2003.) In contrast it has been reported in several studies that a strong SOC correlates with good self-perceived health (Sandén Eriksson, 2000). Other researchers have also reported that a person with a strong SOC is better equipped to handle stressors than a person with a weaker SOC (Karlsson et al., 2000; Olsson and Hwang, 2002). On this basis it is reasonable to say that individuals who have a high frequency of physical activity, experience less stress and cope better with stress and a stressful situation. In line with these findings, there are also justifications for more research to study the effects of more specific physical activity like football, and handball to acquire more knowledge about coping resources. These coping resources might create an SOC, and provide them with physical resources. Further, this can be seen in context with the biopsychosocial model where there is an interaction between social, biological and psychological factors, i.e. it is a way to understand the subjective experience of an individual as an essential contributor to accurate health outcomes (Alonso, 2004; Borrell-Carrio et al., 2004).

However, this result raise an interesting question: does the correlation between SOC and individuals who have a high or low frequency of physical activity might explain or have a an impact on why some people, regardless severe hardships and major stressful situation stay healthy, while others do not (Eriksson and Lindström, 2007). Previous research found a significant relationship between physical activity, and health outcomes, and from a health promotion view is the importance of physical activity increase because of the prevalence of inactivity in the population (Griffin et al., 2007). This fact probably cause the strong relationship with health mediated through SOC in this study. However, the significant differences between sum SOC and frequency is important to take into account for people with chronic musculoskeletal pain. This tells us the importance for these individuals to exercise more frequently, and hopefully increase SOC to a higher level. This in turn can lead to helping the individual stay well and cope with a stressful situation better than when he or she had a lower SOC (Eriksson and Lindstrom, 2006; Kivimäki et al., 2000; Veenstra et al., 2005). An important issue in this case relates to whether the frequency of physical activity produces the many positives effects described in this study, or whether the statistically significant differences only apply to something for those with chronic musculoskeletal pain. Factors like a nonrandomized sample make it more difficult to generalize from these results in relation to other people, like the normal population.

There were no significant differences in intensity and duration in relation to SOC, and to the author`s knowledge, no studies have been that provide information to the contrary. The absence of significant results might be explained by the individuals who have participated in the study. Previous research has documented that individual with chronic pain are known to be inactive, and to demonstrate significant levels of physical deconditioning (Hartigan et al., 2000). It is important for these results to be taken into interpretation.

4.2 Functional health status (COOP/WONCA), sense of coherence (SOC) and physical activity

The second hypothesis is also partly supported. In line with the hypothesis, self-reported physical activity (frequency, intensity, duration) and SOC showed significant relationship in functional health status among individuals with chronic musculoskeletal pain. The present study suggested a relationship to physical activity in physical fitness and overall health, and clarified that sum SOC had a relationship to feelings, daily activities, social activities, and overall health (Table 2).

The present study clarified the relationship and effect of intensity in two of functional health dimensions; physical fitness and overall health, and further, a strong relationship between overall health and pain intensity. This supports that pain - related fear is associated with catastrophic (mis)interpretations of pain, increased escape and avoidance behaviors, and hyper vigilance, as well as with functional disability, and pain intensity (Leeuw et al., 2007). In addition, the clarified relationship between intensity and physical fitness might suggest that intensity improves physical fitness, and is a key to prevent chronic pain or help an individual with chronic musculoskeletal pain. This present study also showed that frequency and overall health have a significant relationship. This might tell us that by taking hold of the amount of training, is it possible to use this to increase the overall health, or vice versa. In addition and in support for previous research, individuals with musculoskeletal pain often report a reduction of their daily activity level and the impact of pain on an individual's daily functioning is generally expressed as a level of disability (Verbunt et al., 2001). Further, this indicates that physical activity plays an important role in the prevention of musculoskeletal pain (Miranda et al., 2001; Morken et al., 2007).

In the present study relationship between sum SOC and feelings, daily activities, social activities, and overall health were found. From a health promotion perspective, this reveals that SOC is an important determinant for health, and according to salutogenic theory it is also said that SOC may be a relevant outcome variable in chronic illness care. The salutogenic theory says that terms could be found within individuals as resources, bound to their capacity (Lindstrom and Eriksson, 2005). The findings in the present study can therefore support the main idea of the Antonovsky's salutogenic model, suggesting that GRRs facilitate an individual's SOC, which in turn maintains health (Antonovsky, 1979; 1987). This suggestion is made on the basis of Antonovsky's focus on health perception (Antonovsky, 1987;

Lillefjell, 2006). If is so, we would expect that there may be changes in the individual that correspond to change in SOC.

It seems that functional health status, physical activity and SOC variables may be important in predicting the psychosocial functioning of patients with musculoskeletal pain, with the contribution of socio- demographic variables (age, gender ,education and pain intensity), whereas pain severity may be unrelated to actual psychosocial functioning. It is therefore particularly relevant to take other factors, like control variables into account. This highlights the relevance of a biopsychosocial approach in individuals with chronic musculoskeletal pain, to understand people`s varying responses to chronic conditions, it is essential to consider each psychological, biological and social factor (Gatchel, 2009; Turk and Monarch, 1996). As theoretically expected, this study indicated there where several relationship between sum SOC, physical activity and functional health dimensions.

4.3 Strengths and limitations

This present study is based on data collected from a multidisciplinary rehabilitation program, in central- Norway, with the main aim of creating is a salutogenic understanding of health, illness and coping. Further, the salutogenic framework involves the understanding of the biopsychosocial model, where biological, psychological and social factors influence each other and provide a composite and complex picture. Hence, the present study represents data from 2005-2006 with a health promotion view. Such knowledge is important, and may be involved in helping individuals with chronic musculoskeletal pain, by helping them to grasp what might be the problem, before rehabilitation. Moreover, some of the results in this study might strengthen what is already known through previous research, as is done in both in this type of sample and normal population.

There are some limitations of the present study: First, the variables used in the present study are self-reported, which means they are highly subjective, this can weaken the reliability to a certain extent. Secondly, studies often look at cause and effects, but this study only looked at the data collected before rehabilitation. Third, the sample may be a bit small, and might limit the generalization of the results, and might only generalize to the sample, as it is nonrandomized sample. Several others variables might also be important predictors of physical activity, sense of coherence and functional health status, but this it would be too large a scope for the present study. Another limitation is the measurements of physical

activity and functioning; it is not certain whether the instrument is good enough and whether it is actually used for what it measures.

5. CONCLUSION

The present study explored the group differences and relationship between physical activity (frequency, intensity and duration), sense of coherence (SOC) and functional health status (physical fitness, feelings, daily activities, social activities and overall health). Which associations do they have with each other in individuals with chronic musculoskeletal pain? The study has gone a step further to find group differences and relationships that exist between the variables in this sample. The results are partly consistent with previous finding; thereby suggesting that sum SOC and physical activity have a certain influence on each other, and might be relevant outcome variables in individuals with chronic musculoskeletal pain. Further, it is also suggested that sum SOC and physical activity may explain some of an individual's functional health status, and therefore may be relevant for people with chronic pain. The research of this study also suggest that future researchers may need to consider using data both pre- and post rehabilitation, to find the cause and effect relationship in the individuals. Despite the fact that physical inactivity and chronic musculoskeletal pain share several negative determinants of health, studies have not clarified whether chronic musculoskeletal pain is a consequence or a cause of inactivity, bad function and low or high SOC. This study also has a desire to increase understanding of the factors that may play a role for the individuals with chronic musculoskeletal pain in a salutogenic and biopsychosocial framework. However, the salutogenic and biopsychosocial models that support the health promotion view are complex. Furthermore, individuals with chronic musculoskeletal pain constitute the largest diagnostic group and chronic musculoskeletal pain is the most frequent cause of sickness and disability in Norway (Andersen et al., 2009; Ihlebæk and Lærum, 2004). Therefore, it is of great importance to further research in this field.

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APPENDIX A:

Fra: Regional komite for medisinsk og helsefaglig forskningsetikk REK nord

Dokumentreferanse: 2010/2961-4

Dokumentdato: 16.12.2010

MÅLRETTEDE REHABILITERINGSTILTAK - INFORMASJON OM VEDTAK

Komiteen behandlet søknaden i møte 02.12.2010. I referatet heter det:

Prosjektleders prosjekttale:

Det er en uttalt politisk målsetning i Norge å gjøre det som er mulig for å bistå personer med nedsatt

funksjonsevne til arbeidsdeltakelse. Allikevel utgjør personer med muskel- og skjelettlidelser en av

de største gruppene når man ser på sykefravær og uførhet (St.meld.nr.9 2006-2007).

Forskning viser

at forhold hos individet alene, sjelden forklarer sykefravær, men at sykefravær og

tilbakeføring til

arbeid foregår i samspillet mellom individet og omgivelsene (Krokstad & Westin, 2004).

Fraværsfaktorene i arbeidslivet er også vist å ikke nødvendigvis være de samme som de som

fremmer nærvær og arbeidsdeltakelse (Mackenbach, Van Den Bos, Van De Mheen, Stronks, 1994;

Lindberg, Josephson, Alfredsson, & Vingård, 2006; Lillefjell, 2008). Formålet med

forskningsprosjektet er å frembringe kunnskap om fravær og nærversfaktorer for utvikling av mer

målrettede tiltak for tilbakeføring til arbeid av langtidssykemeldte med muskel- og skjelettlidelser.

Komiteens merknad:

Dette er en registerstudie med utgangspunkt i Friskgårdens databank og pasientjournal basert på

tidligere avgitt samtykke.

Vedtak :

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

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

Dersom det skal gjøres endringer i prosjektet i forhold til de opplysninger som er gitt i søknaden, må

prosjektleder sende endringsmelding til REK. Vi gjør oppmerksom på at hvis endringene er vesentlige, må prosjektleder sende ny søknad, eller REK kan pålegge at det sendes ny søknad.

Det forutsettes at forskningsdata oppbevares forskriftsmessig.

Godkjennelsen gjelder til 30.04.2013

Prosjektleder skal sende sluttmelding i henhold til helseforskningsloven § 12.

Komiteens vedtak kan påklages til Den nasjonale forskningsetiske komité for medisin og helsefag,
jf. forvaltningsloven § 28 flg. Eventuell klage sendes til REK Nord. Klagefristen er tre uker fra mottak av dette brevet.

Vennlig hilsen

Til:

Monica Lillefjell

monica.lillefjell@hist.no hans-jorgen.leksen@hist.no

May Britt Rossvoll

Beate Solbakken

sekretariatsleder

førstekonsulent

**REGIONAL KOMITÉ FOR MEDISINSK OG HELSEFAGLIG
FORSKNINGSETIKK,
NORD-NORGE
REK NORD**

Besøksadresse: TANN-bygget, Universitetet i Tromsø, N-9037 Tromsø

telefon sentralbord 77 64 40 00 telefon ekspedisjon 77620758

e-post: post@helseforskning.etikkom.no

APPENDIX B:



Frisknett AS
Stod

7717 STEINKJER

Deres referanse

Vår referanse (bes oppgitt ved svar)
09/00017-3 /MHN

Dato

1. september 2009

Konsesjon til behandling av personopplysninger - Frisknett AS

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

Søknaden gjelder etablering av Friskgården databank. Formålet med etablering av databanken er å innhente og systematisere opplysninger om voksne menneskers funksjon og arbeidsevne, samt å tilgjengeliggjøre opplysningene for forskning. Personopplysningene innhentes fra den registrerte selv, ved at vedkommende fyller ut et egenkartleggingsskjema. Registrering er basert på et samtykke fra den registrerte. En oppdatert oversikt over hvilke prosjekter som behandler opplysninger fra datamaterialet, (herunder behandlingsansvarlig for prosjektet, samt formålet med det), skal til enhver tid finnes på Friskgårdens nettsider. Opplysningene skal behandles avidentifisert.

Datatilsynet har vurdert søknaden og gir Dem med hjemmel i personopplysningslovens § 33, jf. § 34, konsesjon til å behandle 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 melde- og/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 konsesjonssøknad.

Postadresse:
Postboks 8177 Dep
0034 OSLO

Kontoradresse:
Tøllbugt 3

Telefon:
22 39 69 00

Telefaks:
22 42 23 50

Org.nr:
974 761 467

Hjemmeside:
www.datatilsynet.no

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 personvern hensyn.

Dette vedtak kan påklages til Personvernemnda 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. Rønnevik
seniorrådgiver


Mari Hersoug Nedberg
rådgiver

APPENDIX C:

FRISKGÅRDEN DATABANK

Hva er Friskgården databank?

Friskgården databank er en databasert samling av opplysninger som er samlet inn fra alle friskgårdene i Norge. Opplysningene kan ikke lenger knyttes til enkeltpersoner. Hensikten med en slik databank er å systematisere opplysninger som i neste omgang kan bidra til forskning og kunnskap om problemstillinger som samfunnet ikke har tilfredsstillende kunnskap om. Forskningsdatabanken har godkjent konsesjon fra Norsk Samfunnsvitenskapelig datatjeneste (NSD) som sørger for at personopplysninger behandles i tråd med gjeldende krav til personvern.

Skal det stå noe om tidsperspektiv på hvor lenge data skal oppbevares ?

Forskning

Når forskerne får data fra databanken er navn, fødselsnummer og andre kjennetegn fjernet, slik at de ikke kan vite hvem som har gitt opplysningene.

Forskningsarbeid kan bidra til økt kunnskap omkring noen av våre største folkehelseproblemer - smerter i muskel-skjelett-systemet, utbrenthetsproblematikk og lettere psykiske lidelser (sammensatte lidelser) og ulike forhold omkring dette. Eksempler på forskningsområder kan være:

* forebygging * behandling * rehabilitering * læring og mestring
* kvalifisering * velferd * livskvalitet * arbeidsliv

Hvem samarbeider Friskgården med i forskningsarbeidet ?

I arbeidet med kunnskapsutvikling jobber Friskgården for å legge til rette for samarbeid med større utdannings- og forskningsinstitusjoner.

Hvem kan delta og hva innebærer deltakelse

Vi ber om å få benytte informasjon fra allerede utfylt kartleggingsskjema. Disse opplysningene aidentifiseres og legges inn i datafiler for senere statistisk behandling.

Frivillighet og samtykke

Det er frivillig å delta i prosjektet ”Friskgården databank”. Hver deltaker må gi et skriftlig samtykke for at opplysningene skal kunne brukes til forskning.

Du kan når som helst etter undersøkelsen trekke tilbake ditt samtykke og be om at data om deg slettes. Hvis du skulle ønske det tar du kontakt med veileder på Friskgården som du tidligere har hatt tilbud på.

Personvern og sikkerhet

Du kan være trygg på at informasjon som du gir samtykke til at prosjektet kan benytte, vil bli behandlet med respekt for personvern og privatliv og i samsvar med lover og forskrifter.

Forskere som senere skal bruke opplysningene, har ikke tilgang til navn, fødselsdato eller personnummer. Alle medarbeidere i prosjektet har tauhetsplikt.

Etisk godkjenning

Alle forskningsprosjekter skal godkjennes av etisk komitè. Komitèen er et frittstående organ som sikrer at de etiske sidene ved forskningsprosjekter blir vurdert. Alle framtidige forskningsprosjekter som benytter data for Friskgården databank, skal godkjennes.

Sammenstilling med andre registre

For spesielle forskningsprosjekter kan det være aktuelt å sammenstille data fra forskningsdatabanken med andre offentlige registre, for eksempel HUNT, NAV og ulike registre ved Statistisk Sentralbyrå (SSB), for eksempel data om befolkning, utdanning, inntekt, offentlige ytelser, yrkesdeltakelse og andre forhold som kan ha betydning for helse og velferd. Alle slike sammenstillinger krever samtykke og/eller forhåndsgodkjenning av de offentlige instanser loven krever, for eksempel Regional komitè for medisinsk forskningsetikk, Datatilsynet eller NAV. All informasjon vil bli behandlet med respekt for personvern og privatliv, og i samsvar med lover og forskrifter. Ingen av forskerne verken skal eller kan vite hvem som har gitt opplysningene.

Samtykke til bruk av opplysninger i forskning

Jeg har lest informasjonen og har hatt anledning til å stille spørsmål. Jeg samtykker i å delta i prosjektet.

Sted:

Dato:

Underskrift:

APPENDIX D

Pasientens navn: _____

f. nr. _____

Dato: _____

PASIENTSKJEMA

Funksjonsmåling (COOP/WONCA)






Norsk bearbeidelse: Prof. B.G. Bentsen
Institutt for allmenntilleggsmedisin og samfunnsmedisinske fag, Universitetet i Oslo

For å kunne følge din generelle helsestilstand før, under og etter en behandling trenger vi å vite "hvordan du har det". Det kan måles ved hjelp av svarene på noen enkle spørsmål. Vi ber deg derfor å svare på de seks spørsmålene på de seks skjemaene (A) til (F) nedenfor.

Du ser seks skjemaer som har som mål å angi din fysiske, psykiske og sosiale tilstand. Skjemaene besvares ved på hvert enkelt skjema **å slå en ring rundt** det tallet til høyre for tegningen som best beskriver din nåværende situasjon.



A. FYSISK FORM

De siste 2 uker...
Hva var den tyngste fysiske belastningen du greide/kunne greid i minst to minutter?

MEGET TUNGT (f.eks.) Løpe fort		1
TUNGT (f.eks.) jogge i rolig tempo		2
MODERAT (f.eks.) Gå i raskt tempo		3
LETT (f.eks.) Gå i vanlig tempo		4
MEGET LETT (f.eks.) Gå sakte - eller kan ikke gå		5

B. FØLESEMESSIG PROBLEM

De siste 2 uker...
Hvor mye har du vært plaget av psykiske problemer som indre uro, angst, nedforhet eller irritabilitet?

Ikke i det hele tatt		1
Bare litt		2
Til en viss grad		3
En god del		4
Svært mye		5

C. DAGLIGE AKTIVITETER

De siste 2 uker...
Har du hatt vansker med å utføre vanlige gjøremål eller oppgaver enten innendørs eller utendørs, p.g.a. din fysiske eller psykiske helse?

Ikke vansker i det hele tatt		1
Bare lette vansker		2
Til en viss grad		3
En god del vansker		4
Har ikke greid noe		5






D. SOSIALE AKTIVITETER

De siste 2 uker...
Har din fysiske eller psykiske helse begrenset dine sosiale aktiviteter og kontakt med familie, venner, naboer eller andre?

Ikke i det hele tatt		1
Bare litt		2
Til en viss grad		3
Ganske mye		4
I svært stor grad		5

F. SAMLET HELSETILSTAND

De siste 2 uker...
Hvorledes vil du vurdere din egen helse, fysisk og psykisk i allminnlighet?

Svært god		1
God		2
Verken god eller dårlig		3
Dårlig		4
Meget dårlig		5

APPENDIX E:

SOC-13 (OAS - Opplevelsen av sammenheng) spørreskjema – 13 punkts versjon.

Her er en serie med spørsmål som omhandler ulike aspekter i livet vårt. Hvert spørsmål har 7 ulike svaralternativer. Vennligst merk av det nummeret som uttrykker ditt svaralternativ. Nummerene 1 og 7 er ytterpunktene av svaralternativene på aksene. Hvis ordene under 1 er rett for deg, sett kryss i nummer 1. Hvis ordene under 7 er rett for deg, sett kryss i nummer 7. Hvis du føler det annerledes, sett kryss på det nummeret mellom 1 og 7 som best beskriver det du føler. Vennligst gi bare ett svar på hvert spørsmål.

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

1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

veldig sjelden
eller aldri

veldig
ofte

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

1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

det har aldri
hendt

det hender
alltid

5.3 Har det hendt at personer du stoler på har skuffet deg?

1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

det har aldri
hendt

det hender
alltid

5.4 Inntil nå har livet mitt:

1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

veldig sjelden
eller aldri

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

1 2 3 4 5 6 7

veldig ofte

veldig sjelden
eller aldri

5.7 Er dine dagligdagse aktiviteter en kilde til:

1 2 3 4 5 6 7

glede og
tilfredsstillelse

smerte og
kjedsommelighet

5.8 Har du veldig motstridende tanker og følelser?

1 2 3 4 5 6 7

veldig ofte

veldig sjelden
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 sjelden
eller aldri

5.10 Selv mennesker med 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

veldig sjelden
eller aldri

5.13 Hvor ofte har du følelser du ikke er sikker på at du kan kontrollere?

1 2 3 4 5 6 7

veldig ofte

veldig sjelden
eller aldri