UNIVERSITY OF GOTHENBURG

THE SAHLGRENSKA ACADEMY

Sense of coherence in association with health status and chronic pain

Degree Project in Medicine

Sofia Hägerström

Programme in Medicine

Gothenburg, Sweden 2018

Supervisor: Professor Stefan Bergman

Primary Health Care Unit, Department of Public Health and Community Medicine, Institute of Medicine, The Sahlgrenska Academy, University of Gothenburg

Table of contents

Abstract 3

Introduction 4

Aims of the study 6

Methods 7

Study design 7

Subjects and data collection 7

Questionnaire 8

Statistical procedure and analyses 10

Ethics 11

Results 12

Discussion 19

Methodological considerations 23

Conclusions and implications 24

Populärvetenskaplig sammanfattning 26

Acknowledgements 28

References 29

Abstract

Background: Chronic musculoskeletal pain is a common condition that has become a great challenge for the society. Although much is known about factors that are associated with chronic pain, there is little information about the influence of sense of coherence (SOC) on pain. This study used a salutogenetic approach and investigated this influence. Moreover, the relationship between SOC and health status was explored.

Aim: To investigate the association between SOC, health status and chronic pain in a general population followed over 13 years.

Methods: A combined cross-sectional and a longitudinal cohort study on a general population, based on an initial postal survey at baseline 2003 and a follow-up survey in 2016. Health status was measured by SF-36 and SOC was measured by SOC-3. Subjects were divided into three levels of SOC (low, moderate, high) and into three pain groups (NCP = no chronic pain, CRP = chronic regional pain, CWP =chronic widespread pain). Questions on lifestyle factors and demographic factors were also included. The results were controlled for age, gender and pain group.

Results: The cross-sectional study found a strong association between a high SOC and higher mean values of all eight SF-36 dimensions. The high SOC sample also reported a higher prevalence of NCP and a lower prevalence of CWP than the low SOC sample. The longitudinal study showed that SOC predicted pain outcome 13 years later, but the evidence for SOC as a predictor of health status was weak.

Conclusions: SOC seems to have an important impact on both health and chronic pain. The findings suggest that it would be beneficial to make efforts to strengthen the SOC, both when meeting patients in the clinic and when making interventions on a national level.

Key words: Sense of coherence; Health status; Chronic pain; Salutogenesis

Introduction

The past decade has seen a rapid development in finding and identifying risk factors related to diseases with high mortality. Thanks to this medical progress, the death rate has decreased and the average age has increased. This depends not only on a declined incidence of deadly diseases, but also because of an increase of non-fatal outcomes from deadly diseases or injuries. An important consequence of living longer is the growing susceptibility to chronic diseases(1), such as diabetes, cardiovascular diseases, obesity, cancer and chronic pain. The burden of chronic disease is steadily increasing and it has been estimated that chronic diseases will account for 75 % of all deaths worldwide in 2020(2).

As a result of this growing concern about chronic diseases, the view of health has become more than just about avoiding death. This change of view mainly started in 1986 when the term "health promotion" was defined by WHO as *"the process of enabling people to increase control over, and to improve, their health"*(3). Since then, health systems do allocate considerable resources to the detection of factors that promote health instead of the detection of factors that prevent diseases.

In close connection to health promotion is the term "salutogenesis", which was introduced in 1979 by Aaron Antonovsky (1923-1994), a professor in medical sociology. As in health promotion work, the principal focus in the salutogenetic perspective is on finding factors that preserve and prevent a good health. By studying how people was coping with different stressful situations, Antonovsky found out that in response to stress, some people achieved a better health, while others had a negative health outcome. According to his studies, Antonovsky argued that salutogenesis greatly depends on experiencing a strong 'sense of

coherence' (SOC). SOC consists of the three central components: meaningfulness, manageability and comprehensibility(4).

One of the main challenges among chronic conditions is the presence of chronic musculoskeletal pain. Different studies have reported a prevalence of 20-50 % in the adult European population(5-8). Pain is usually considered chronic when lasting more than three months. Common causes of chronic pain are osteoarthritis, low back pain, neck pain, rheumatoid arthritis and gout(6). Generally, these conditions are grouped together as musculoskeletal disorders (MSKs). From 1990 to 2010, the burden of MSKs increased by 46%. As one of the major risk factors for MSKs is age, it is estimated that the burden of MSKs will continue to increase enormously(1, 9).

Apart from being a common condition, chronic musculoskeletal pain have been shown to have strong correlation with health status in a number of studies, i.e. people with chronic pain estimate their quality of life to be lower than people without chronic pain(9-12). For example, chronic pain affects sleeping quality as well as ability to exercise, attend social activities and maintain an independent life style and family relationships(6, 9).

In addition to the impact on the individual's health status, chronic pain entails high costs for the society. People with chronic pain seek for more medical help compared to the pain-free population(13-15). Furthermore, pain is associated with mental co-morbidity. An important example of this is that the prevalence of depression is higher among persons with chronic pain(5, 16-18). Most costs are though related to lost productivity and the need for social support, rather than health-care costs(1). In 2003, the estimated cost for chronic pain in Sweden was 90 billion(19).

It is now well established from a variety of studies, that the emergence of chronic pain depends on biological, social and psychological factors, i.e. to understand pain a biopsychosocial approach should be used(18, 20-22). So far, however, there has been little discussion about the relationship between SOC and chronic pain. This thesis will examine the way in which the strength of SOC is associated with chronic pain. Moreover, it will look at the relationship between SOC and health status. Previous studies have shown that a strong SOC is related to a better perceived health(23). Much of this prior research was though based upon data from the original 29 item version or the 13 item version of the SOC scale. This study attempts to show that SOC can be associated to health status by measuring SOC in a simplified way by using only three items.

Aims of the study

The main aim of this study is to explore the association between SOC, health status and chronic pain in a general population followed over 13 years.

The structure of the study takes the form of four specific research questions:

1. To explore the relationship between SOC (measured by only three questions) and health status (measured by SF-36) in a general population.
2. To evaluate the association between SOC and chronic pain.
3. To evaluate if SOC at baseline could be a predictor for health status thirteen years later.
4. To assess if SOC at baseline could be a predictor for the development of chronic pain thirteen years later.

Methods

Study design

A cross-sectional and a longitudinal cohort study on a general population, based on an initial postal survey at baseline 2003 and a follow-up survey 13 years later.

Subjects and data collection

This study is a part of the Epipain project that started in 1995. The project´s primary purpose was to estimate the prevalence of chronic pain, fibromyalgia and rheumatoid arthritis in a general population. The original target population was 70 704 inhabitants aged 20-74 years in Halmstad and Laholm, two middle-sized communities in the south-west part of Sweden. An initial sample of 3928 subjects was recruited from a computerized population register. The sample was representative with respect to gender as every 18th man and woman was selected. Once the sample was determined, the subjects were invited to take part in the study by a postal survey. After that non-respondents had received two reminders, there were 2425 (62%) subjects who agreed to participate in the study. An analysis for non-participation was done by interviewing 109 of the non-responders by telephone. Among these 109 subjects, there was a lower prevalence of chronic pain (21%) than among those who completed the survey (37%).

In 2003, which is set to baseline in this study, a second survey was sent to 2 332 of the initial 2425 responders, as ninety-three subjects had emigrated from Sweden or had died. At this point 1850 (79%) subjects answered the survey, again after two reminders. Of 1850 included subjects, there was a predominance of women (56%). In 2016, a third survey was sent to 1521 participants that still were alive, not actively had refrained from participating or had immigrated from Sweden. Of these, 1085 subjects answered the follow-up questionnaire, thus giving a response rate of 71%.

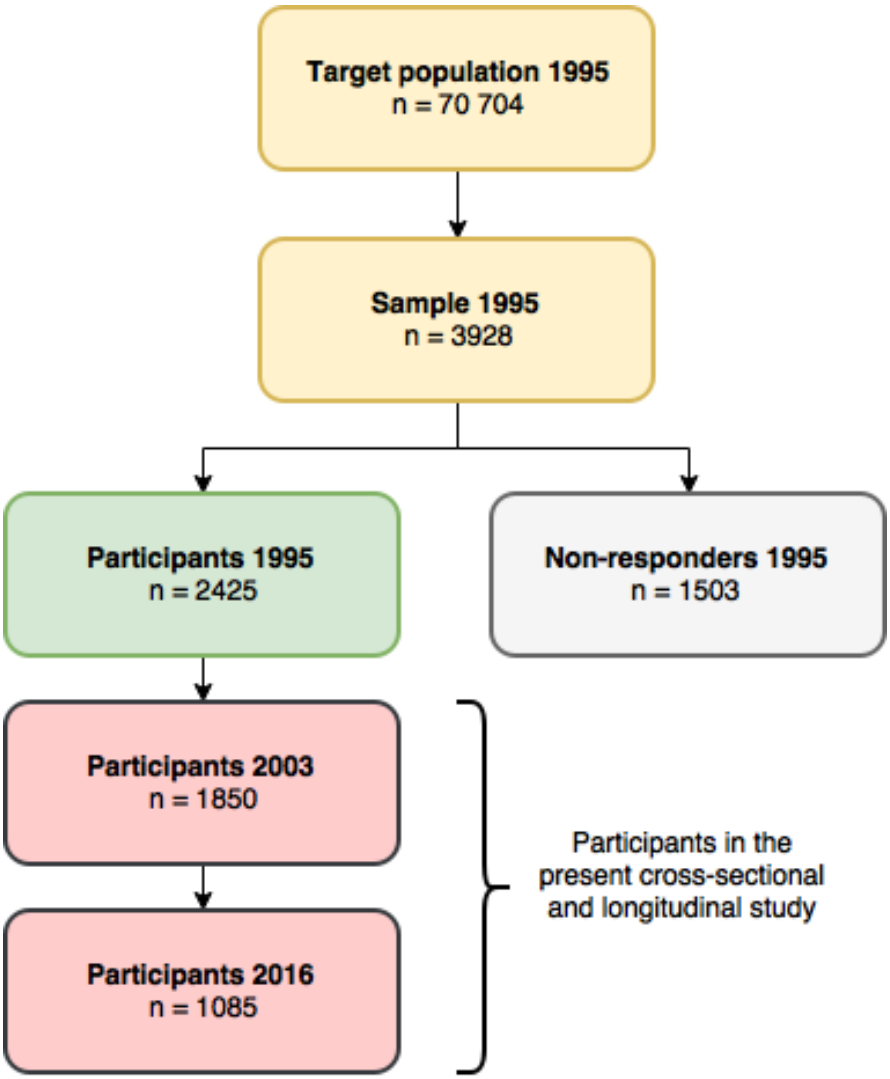

Figure 1. Flowchart of the whole Epipain study, where the present study has its baseline in 2003, with its follow-up in 2016.

Questionnaire

The questionnaire is combined of two parts. For obtaining information on health status, the first part consisted of the Swedish version of the standardized health survey Short Form-36 Health Survey (SF-36). SF-36 is a widely used method for measuring health status and has been shown to have a great reliability and validity (24). The survey contains 36 questions which provide scores on a 0-100 scale for eight different health domains. The eight dimensions are: Physical functioning (PF), Role - Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role - Emotional (RE) and Mental

Health (MH). Three scales (PF, RP and BP) correlate primarily to the physical component of health, while RE and ME correlate primarily to the mental component of health. GH, VT and SF have correlations with both aspects. A higher score implies a better health in the specific subscale.

In most recent studies, the level of SOC has been measured by either SOC-29 or SOC-13. SOC-29 is the original name of the 29-question instrument and SOC-13 is a shorter form of the first version, both are developed by Antonovsky (25). These two questionnaires are impractical for large surveys as they are lengthy. Therefore, to save time and space, the three-item questionnaire SOC-3 was used, which has been shown to be useful and time-saving in population-based surveys (26, 27). The questions of SOC-3 correlated closely to the three major components of SOC. (1) Manageability: Do you usually see a solution to problems and difficulties that other people find hopeless? (2) Meaningfulness: Do you usually feel that your daily life is a source of personal satisfaction? (3) Comprehensibility: Do you usually feel that the things that happen to you in your daily life are hard to understand?
There were 5 response alternatives and a score range was generated between 1-12 points. By using an algorithm, the points were converted into three levels of SOC: low (1-6 p), moderate (7-9 p) or high (10-12 p).

The second part of the questionnaire consisted of 52 questions, focusing on chronic pain, co-morbidity, lifestyle factors and demographic factors. In order to identify the presence of chronic musculoskeletal pain, the second part started with the key question: *Have you ever experienced pain lasting more than three months during the last twelve months?* If the answer was ”YES”, the pain distribution was self-reported by using a drawn body with 18 pain locations. Depending on the pain distribution a distinction was made between chronic

regional pain (CRP) and chronic widespread pain (CWP). A third group with no present pain was defined as no chronic pain (NCP).

Pain was considered chronic when lasting more than 3 months and if it had been present in the prior 12 months according to the American College of Rheumatology (ACR) 1990 criteria of chronic pain. Due to ACR, pain was further considered widespread when it was present in the left and right side of the body, above and below the waist and along the axial skeleton (cervical spine or anterior chest or thoracic spine or low back).

For estimation of co-morbidity the respondents were asked if they had ever had chronic heart disease, chronic lung disease, chronic articular disease, diabetes mellitus, psychiatric major diseases or psoriasis. These conditions were used as they are common chronic health diseases that could affect health and quality of life.

For lifestyle factors, there were questions on sleep quality, regularly exercising, smoking habits and alcohol consumption. There were also questions on emotional support and being a member in a group of friends. Demographic characteristics included in the questionnaire were age, gender, educational level, occupation and marital status.

Statistical procedure and analyses

Data management and analysis were performed using SPSS for Mac, release 25. T-test and ANOVA were used for statistical comparison of means and Chi-square-test was used for comparisons of prevalence between groups. Multivariate regression analysis was used to control for the possible confounding effect of age, gender and pain group. The level of significance was based on a *P*-value of less than 0.05.

Ethics

Ethical approval was obtained from The Regional Ethical Review Board in Lund, Sweden.

The computerized registration was approved by The Swedish Data Inspection Board.

Results

At baseline in 2003, there were 1850 subjects who responded to the survey. Of those 1850 subjects, 1773 had completed both the SOC questions and the pain questions and could be categorized into one of the three pain groups: no chronic pain (NCP; n=943), chronic regional pain (CRP; n=563) and chronic widespread pain (CWP; n=267). These groups were further subdivided into nine groups, depending on the level of SOC (low, moderate, high).

Table 1. Participants at baseline and follow-up presented with mean for age and numbers (%).

		Baseline 2003	**Follow-up 2016**
Total		1850	1085
Age			
	Mean	54.7	64.9
Sex			
	Men	819 (44.3)	454 (41.8)
	Women	1031 (55.7)	631 (58.2)
Pain group			
	NCP[1]	943 (53.2)	555 (30.0)
	CRP[2]	563 (31.8)	321 (17.4)
	CWP[3]	267 (15.1)	209 (11.3)
SOC-level			
	Low	318 (17.5)	172 (16.0)
	Moderate	1050 (57.6)	584 (54.2)
	High	464 (25.5)	322 (29.9)

[1] *NCP = No Chronic Pain*
[2] *CRP = Chronic Regional Pain*
[3] *CWP = Chronic Widespread Pain*

Association between SOC and SF-36 health status at baseline

Subjects with moderate to high SOC reported higher mean scores than subjects with low SOC in all eight SF-36 dimensions at baseline. The results are shown in Figure 2. A two-way ANOVA revealed that these differences were statistically significant ($P<0.001$). When controlling for age, gender and pain group these significant differences persisted.

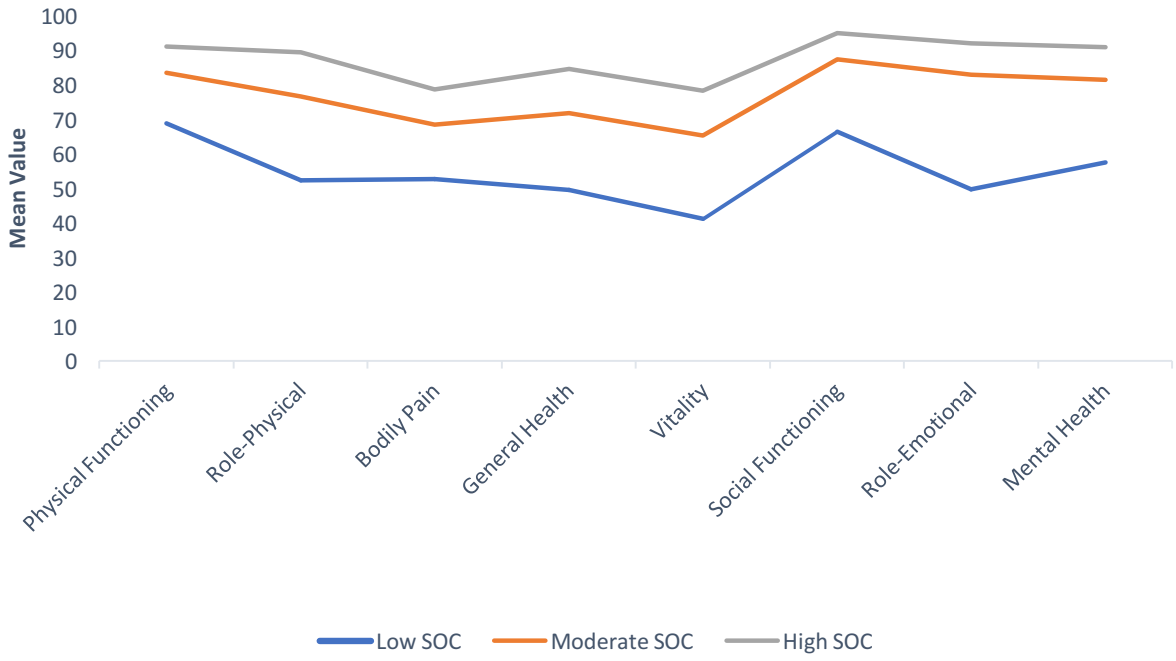

Figure 2. Association between SOC and SF-36 dimensions at baseline.

Association between SOC and chronic pain at baseline

Subjects with low SOC reported more often CWP than subjects with moderate or high SOC. Among people with high SOC as much as 66% reported NCP, while only 34% with low SOC-strength reported NCP. Among respondents with moderate SOC, 53% reported NCP, 34% CRP and 13% CWP. By using a Chi-Square-test, it was found that these differences were significant ($P<0.001$). The association between SOC and pain distribution is highlighted in the pie charts below (Figure 3).

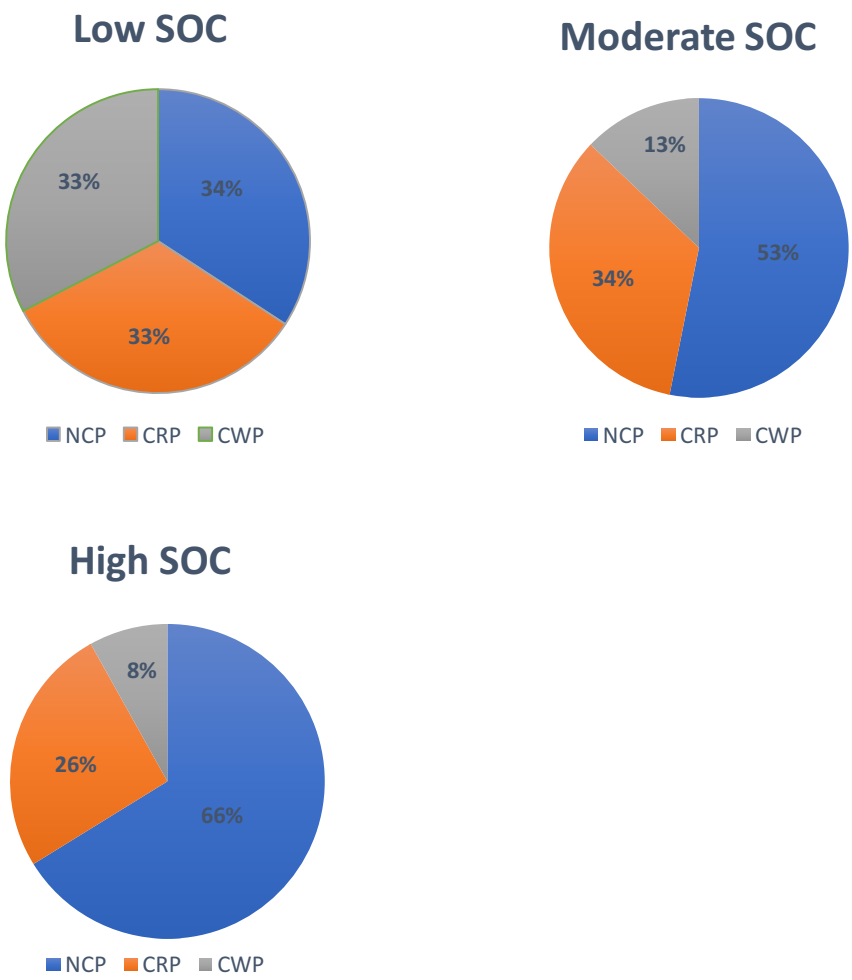

Figure 3. Association between SOC and pain group at baseline. (NCP = No Chronic Pain, CRP = Chronic Regional Pain, CWP = Chronic Widespread Pain)

SOC at baseline as predictor for SF-36 thirteen years later

Changes in SF-36 health dimensions over time were obtained by subtraction of the mean score of 2016 with the mean score of 2003. Hence, if the mean value was higher in 2016, the outcome was better health in that particular aspect, i.e. the health had improved over time. As one can see in Figure 4, all the mean scores had decreased over time for subjects reporting high or moderate SOC at baseline in 2003. Among people who reported low SOC at baseline, PF, RP, GH and RE had decreased, while the mean values for BP, VT, SF and MH had increased over time. After controlling for age, gender and pain group, these differences were significant for PF (P=0.014), GH (P=0.017), VT (P=0.012) and MH (P<0.001).

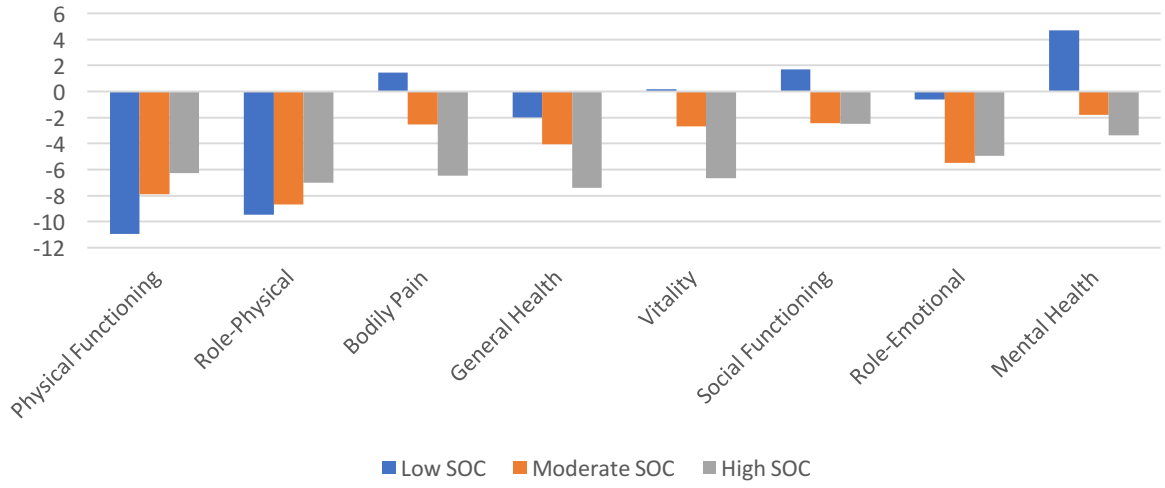

Figure 4. Association between SOC and changes in SF-36 dimensions at follow-up.

After including subjects that reported a value of 70 or less in the SF-36 dimensions at baseline, the association between SOC and health changed markedly. The results, as shown in Figure 5, show that subjects with high SOC reported a greater improvement in health status at follow-up, compared to persons with moderate or low SOC. This improvement was seen in all dimensions. The smallest improvement was seen for subjects reporting low SOC. There was a significant positive correlation between SOC and PF, RP, SF, RE and MH. Though, after controlling for age, gender and pain group, the significant difference persisted for SF (P=0.032).

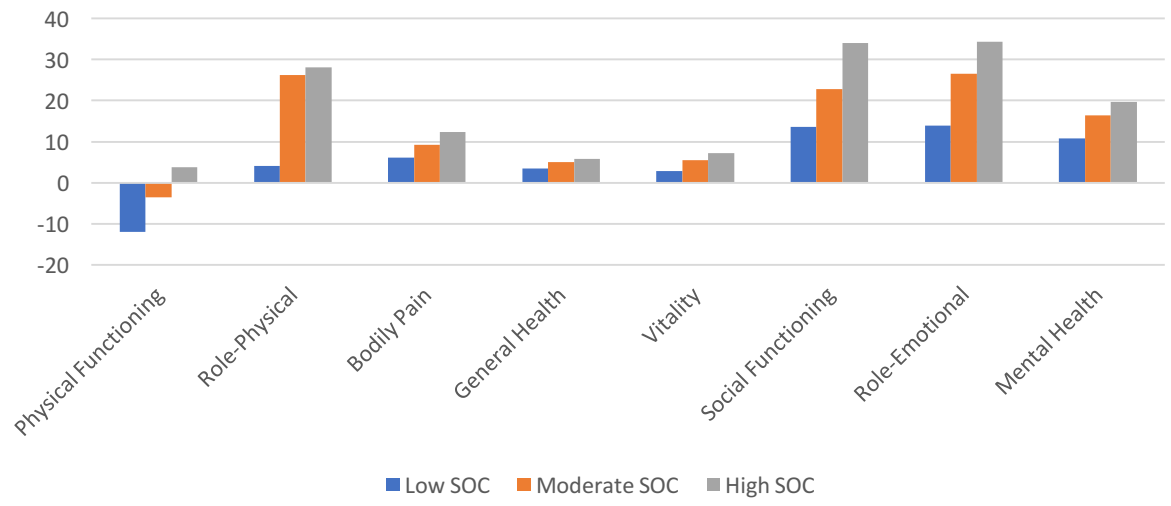

Figure 5. Association between SOC and changes in SF-36 dimensions at follow-up, after including subjects with a value of 70 or less at baseline.

SOC at baseline as predictor for pain outcome thirteen years later

Among people with high SOC who reported NCP at baseline (n=193), 69.4% (n=134) still reported NCP thirteen years later. Only 3.6% (n=7) had developed CWP. For subjects with low SOC and NCP at baseline (n=49), 57.1% (n=28) still reported NCP at the follow-up, while 10.2% (n=5) had developed CWP.

For those with CRP at baseline (n=324), a higher proportion had developed CWP compared to those with NCP at baseline (21.3% vs. 7.0%). There were, however, no association between SOC and CWP development.

For subjects who reported CWP at baseline (n=134), 43.5% of the subjects with high SOC had changed their pain group belonging to a group with less pain at the follow-up, compared to 20.5% of subjects with low SOC. No significant difference between the groups was evident. Figure 6-8 shows the summary statistics for these results.

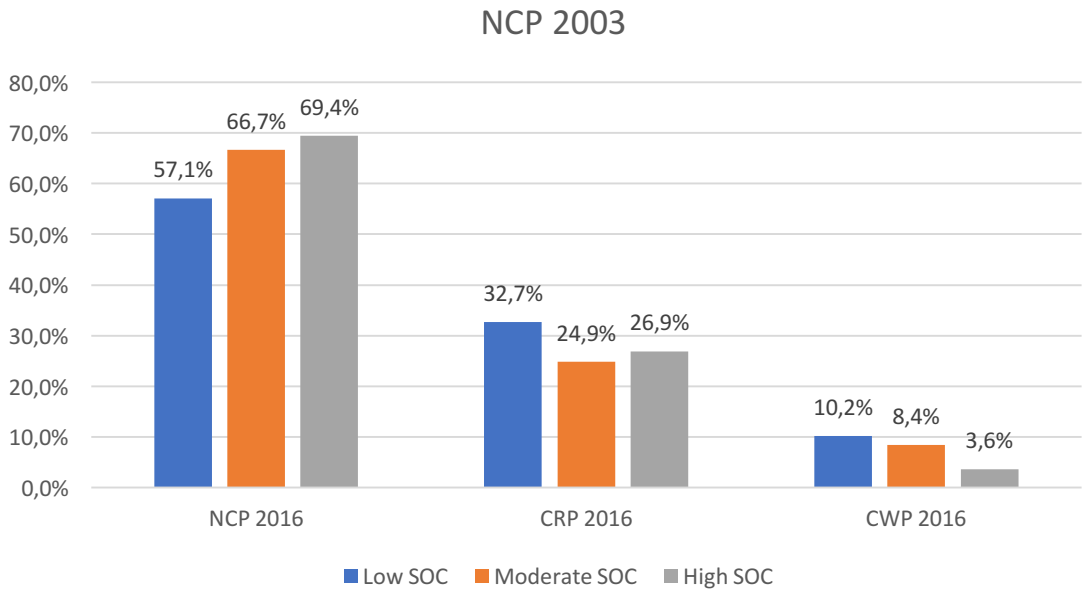

Figure 6. Pain group belonging at follow-up for subjects reporting NCP at baseline. (NCP = No Chronic Pain, CRP = Chronic Regional Pain, CWP = Chronic Widespread Pain)

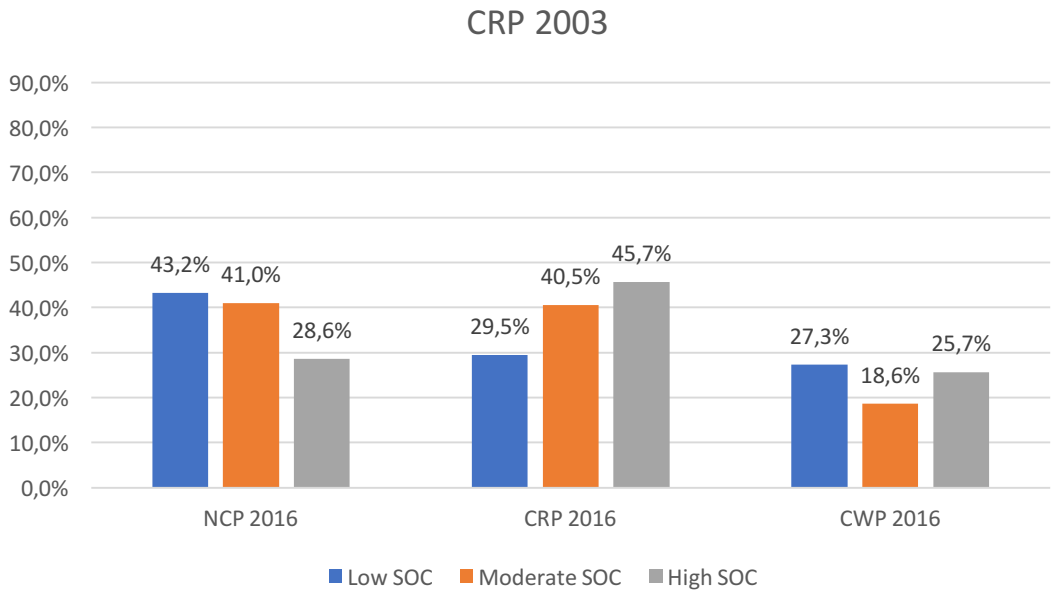

Figure 7. Pain group belonging at follow-up for subjects reporting CRP at baseline. (NCP = No Chronic Pain, CRP = Chronic Regional Pain, CWP = Chronic Widespread Pain)

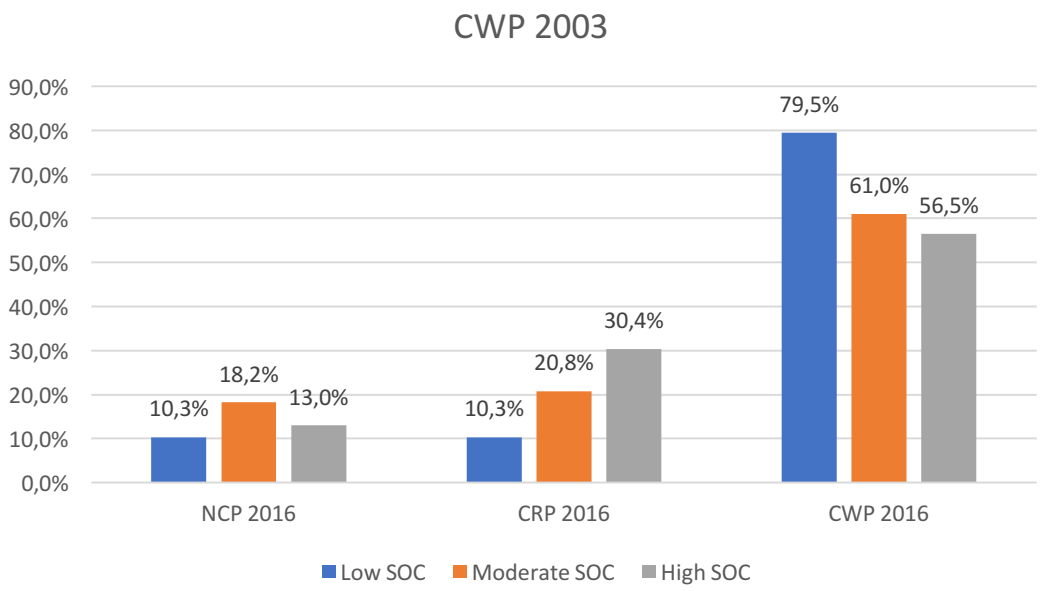

Figure 8. Pain group belonging at follow-up for subjects reporting CWP at baseline. (NCP = No Chronic Pain, CRP = Chronic Regional Pain, CWP = Chronic Widespread Pain)

A group comparison between SOC levels showed an overall significant association with the changes in pain group belonging between 2003 and 2016 ($P<0.001$).

Discussion

In this cross-sectional and longitudinal study, there were two major findings. First, the cross-sectional part of the study found a positive significant association between SOC in relation to both health status and chronic pain. Second, the longitudinal study showed that SOC is an important predictor for development of chronic pain, but the evidence for SOC as a predictor for health status was weak.

An initial question of the project was to identify an association between SOC and health status. In agreement with prior studies (28-30), this study confirmed that the level of SOC has an impact on both physical and mental health. Subjects with low SOC reported poorer health than subjects with moderate or high SOC. This association was found, although SOC was measured by only three items.

A systematic review showed that a stronger SOC correlates highly with a better Quality of Life (QoL) (31). Since many studies have shown that pain has a major impact on the QoL (9, 10) it was possible that the results were biased by the presence of pain. Therefore, the statistical analysis was adjusted for chronic pain as a possible confounding factor. Even after this adjustment, there was a significant association between SOC and health.

The second question in this study sought to determine the association between SOC and chronic pain. The results showed that a low SOC was associated with a higher prevalence of chronic pain. This finding was very distinctive for CWP, since subjects with low SOC reported a fourfold prevalence of CWP compared to subjects with high SOC. The results also showed that two-thirds of the subjects with high SOC were pain-free, compared to only one-third among people with low SOC.

A possible explanation for the differences in prevalence of pain between SOC groups might be due to attitudes about pain. In a Norwegian study it was found that subjects with long-term musculoskeletal pain not only reported low levels of SOC, but also had poorer coping capacities (32). These conclusions match the findings of Chumbler et. al, who showed that a strong SOC was associated with less catastrophic thinking among subjects with chronic musculoskeletal pain. Thus, subjects with high SOC might have a greater likelihood of a positive outcome when affected by pain, according to better coping strategies (33).

The third question in this research was if SOC could be a predictor of health status. It is somewhat surprising that no improvement was noted in any of the health dimensions among subjects with moderate or high SOC. Instead, it was found that subjects with low SOC improved health, at least this was significant for VT and MH. It is interesting to consider why the mean value of MH was the dimension that had increased mostly. A possible explanation for this might be that the mental aspect of health can be affected by many factors, and therefore tends to vary over time, whilst the physical condition is a steadier state of health.

As this rather contradictory result may be due to a roof effect, a further analysis was done, which only included subjects who reported mean values of 70 or less at baseline. This adjustment changed the pattern of health outcomes considerably. The greatest improvement was now found among the subjects with high SOC and this was found in all the dimensions.

Although this positive correlation between high SOC and better health status was not significant (except for SF), this new pattern appeared to be more logical than the first one.

This result may be explained by the fact that there is a roof effect, when using the SF-36 scale. Another possible explanation is that it is hard to improve an already good health. However, this result may provide support for that a high SOC can be a predictive health resource, at least when the initial level of health is poor.

The overall results in this study of the impact of SOC on health status are in line with those of Kivimäki et. al., who also found a cross-sectional association with SOC and health, but in their longitudinal study there were no difference in the development of health between persons with high or low SOC (30). On the other hand, a strong SOC predicted good subjective health in both women and men, when a Finnish population was followed during 4 years (34). It might be possible that this study would have found similar results, if the time span was shorter.

As little evidence was found for SOC as a predictor for health status, this study failed to confirm the salutogenetic theory of Antonovsky with regard to this outcome and over such a long period as thirteen years(4). Prior longitudinal studies on this topic have also reported unsatisfying results. According to Antonovsky, SOC is a personal resource that maintains a positive health in stressful situations. Furthermore, Antonovsky argued that the strength of SOC is established in the first decades of life, is stable over time and is little or not affected by later life events. However, there are several studies that report that SOC tends to increase by age. Additionally, studies have found that a low SOC is associated with poorer mental health and that major life events can change the strength of SOC.

The final question in this thesis was if SOC could be a predictor of chronic pain. Overall, the results of this question indicate that SOC could predict pain. A striking finding was that

people with low SOC not only developed CWP more than people with higher SOC, but also maintained CWP to a greater proportion. As mentioned above, one reason for this could be that people with low SOC have fewer coping strategies.

Another observation was that among subjects who reported CRP at baseline, equal proportions had changed their group belonging from CRP to NCP as from CRP to CWP. It is somewhat surprising that these changes of pain groups were not influenced by the level of SOC. This finding could be due to the fact that the group of CRP is very diverse, with some individuals who could almost be categorized into the NCP group at baseline, and some individuals who were close to be categorized into the CWP group.

Since there were more individuals who had emerged from CRP to CWP than from NCP to CWP, it is likely that pain itself is a risk factor for further pain (12). This progress of pain may partly be explained by the *Fear-avoidance model* which is an established model that interprets and explains why some individuals with musculoskeletal pain develop chronic pain. The concept of the model is that fear of pain leads to avoidance of activities that are believed to provoke pain. This fear discourages the person from activities that could lead to a reduction of pain and thus the pain is maintained or even is getting aggravated (35).

There are few existing longitudinal studies on this field. Nevertheless, the results of this study support Wiesmann's findings which showed that SOC and morbidity were the only predictors of pain in the elderly when different resources that could influence pain were investigated (36). Moreover, a Swedish study that followed employees with chronic pain over 12 weeks found that the mean scores of pain intensity decreased more among subjects with high SOC than among subjects with low SOC (29).

Methodological considerations

The generalisability of these results is subject to certain limitations. For instance, the respondents were fairly representative of the Swedish population as there was an over-representation of middle-aged women. Individuals with chronic musculoskeletal pain were also more motivated to respond to the surveys. However, as age, sex and presence of pain could be possible confounders, we controlled for these factors in the analysis.

Since the original study started in 1995, a more representative sample of the population could have been yielded if the baseline was set to this year. This could also have given a higher total response rate. Unfortunately, the first survey did not include the questions on SOC, which was one reason for why baseline was set to 2003 in the present study. However, an advantage for a later baseline was that the age ranged from 28-82 years instead of 20-74 years. This could have enhanced the possibility of assessing the development of chronic pain, as it is known from several studies that the prevalence of chronic pain increases considerably at the age of 30 and thereafter (7, 8).

According to the inconclusive results of the reliability and validity of SOC-3 (37, 38), one source of weakness in this study could be the use of SOC-3 as a measurement of SOC. It is understandable that a simplified questionnaire might decrease the validity, especially as the concepts of SOC are complex. However, this study found a strong positive association between SOC and health status, even though SOC was measured in a simplified way. This association persisted after adjustment was made for bias. These significant results add support to the ideas of Chiesi et. al and Lundström and Nyström Peck, who suggested that SOC-3 is a valid and useful tool in population-based surveys (26, 27). Hence, these findings raise the

opportunity of evaluating the importance of SOC as a health promotor in future studies, especially when there is a limit of time or space.

At last, it would have been interesting to assess the effects of depression on the results. Chumbler et. al found that there was no association between SOC and pain severity or pain disability, after controlling for depression (28). Moreover, a systematic review reported a strong negative relationship between a low SOC and depression (23). A further study where the impact of depression on SOC is taken into account is therefore suggested.

Conclusions and implications

This study has identified that a high SOC is cross-sectionally associated with both a better health and a lower prevalence of chronic pain. The results of the longitudinal study also found that SOC can be a predictor of chronic pain, but failed to show that SOC can be a predictor of health status as measured by SF-36.

The findings on the relationship of SOC and chronic pain give further support to the understanding of chronic pain as a biopsychosocial process. This knowledge is important due to the high prevalence of chronic pain and because of its impact on the quality of life.

Whilst this study did not confirm the theory of Antonovsky, the findings might partially indicate that a high SOC can be an important health resource, at least when the initial health is poor. To develop a full picture of the role of SOC a as health promotor, additional longitudinal studies will be needed.

Overall, the findings of this study suggest that it would be beneficial to make efforts to strengthen the SOC, both when meeting patients in the clinic and when making interventions on a national level.

Populärvetenskaplig sammanfattning

Känsla av sammanhang i relation till långvarig smärta och hälsa

Bakgrund: Under de senaste decennierna har stora framsteg gjorts som har minskat dödligheten i olika sjukdomar. Det har resulterat i en växande befolkning med en allt högre medelålder. En konsekvens av en åldrande befolkning är dock att andelen med kronisk sjukdom ökar. I stället för att enbart rikta fokus på att bota sjukdomar läggs därför mer resurser på att förbättra livskvaliteten för de med kronisk sjukdom. Man talar om vikten av en god hälsa, som kan finnas trots närvaro av sjukdom.

En föregångare i att studera varför vissa människor hade bättre hälsa än andra var Aaron Antonovsky, professor i medicinsk sociologi (1923-1994). Antonovsky observerade att vissa människor reagerade positivt på stressfulla situationer, medan andra drabbades av ohälsa. Han drog slutsatsen att en hög ”känsla av sammanhang” (KASAM) är viktigast för en god hälsa. En hög KASAM innebär att en individ ser livet som meningsfullt, hanterbart och begripligt.

En annan viktig förutsättning för en hög livskvalitet är smärtfrihet. Dock är långvarig smärta numera ett av de vanligaste kroniska tillstånden. Studier visar att ca 20-50 % av alla vuxna i Europa lever med långvarig smärta. Förutom att smärta skapar lidande för den enskilda individen, kostar det också samhället stora summor pengar i form av bland annat minskad arbetsförmåga och sociala ersättningar.

Med denna bakgrund finns det ett fortsatt behov av att ta reda på faktorer som har betydelse för varför långvarig smärta uppkommer. Syftet med denna studie var därför att undersöka sambandet mellan KASAM och hälsa samt kronisk smärta. För att ta reda på det användes en enkät som skickades ut till 2425 personer i åldrarna 20-74 vid två tillfällen (2003 och 2016).

Resultat: Studien har visat att det finns ett starkt samband mellan en hög KASAM och en god hälsa samt att individer med en hög KASAM har en lägre förekomst av långvarig smärta. Bland dem med låg KASAM är andelen med långvarig smärta inte bara högre, utan det tycks också vara färre som förbättras i sin smärtsituation över tid. Det var dock svårt att dra slutsatser kring om en hög KASAM ger en bättre hälsa på sikt.

Slutsats: Genom studien har förståelsen ökat kring att KASAM har ett samband med både hälsa och smärta. Denna nya kunskap är viktig ur många aspekter. En aspekt är den ger en ökad förståelse för varför vissa människor drabbas mer av kronisk smärta än andra, vilket är viktigt att förhålla sig till i mötet mellan läkare och patient. En annan aspekt är att kunskapen är viktig ur ett folkhälsoperspektiv, för att ta fram strategier som främjar en bättre livskvalitet i befolkningen, minskar det individuella lidandet samt minskar samhällskostnaderna.

Acknowledgements

I would like to thank my supervisor Stefan Bergman for several reasons. Firstly, thanks for the e-mail reply and the following meeting, which greatly reduced my level of anxiety. Secondly, thanks for the hours you spent helping me with the statistics. Without your invaluable help, I would have spent hours figuring it out! Finally, I would like to express my greatest appreciation for all your encouraging words during these months. Your enthusiasm has inspired me and you have increased my confidence in taking part of future projects.

References

1. March L, Smith EUR, Hoy DG, Cross MJ, Sanchez-Riera L, Blyth F, et al. Burden of disability due to musculoskeletal (MSK) disorders. Best Practice and Research: Clinical Rheumatology. 2014;28(3):353-66.
2. World Health Organization. 2. Background [cited 2017 12 oct]. Available from: http://www.who.int/nutrition/topics/2_background/en/
3. World Health Organization. Health promotion [cited 2017 3 oct]. Available from: http://www.who.int/topics/health_promotion/en/.
4. Antonovsky A, Elfstadius M. Hälsans mysterium. Stockholm: Natur och kultur; 2005.
5. Tsang A, Von Korff M, Lee S, Alonso J, Karam E, Angermeyer MC, et al. Common Chronic Pain Conditions in Developed and Developing Countries: Gender and Age Differences and Comorbidity With Depression-Anxiety Disorders. Journal of Pain. 2008;9(10):883-91.
6. Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. European journal of pain (London, England). 2006;10(4):287-333.
7. Bergman S, Herrstrom P, Hogstrom K, Petersson IF, Svensson B, Jacobsson LT. Chronic musculoskeletal pain, prevalence rates, and sociodemographic associations in a Swedish population study. The Journal of rheumatology. 2001;28(6):1369-77.
8. Elliott AM, Smith BH, Penny KI, Smith WC, Chambers WA. The epidemiology of chronic pain in the community. Lancet. 1999;354(9186):1248-52.
9. Dominick KL, Ahern FM, Gold CH, Heller DA. Health-related quality of life among older adults with arthritis. Health and quality of life outcomes. 2004;2.
10. Picavet HSJ, Hoeymans N. Health related quality of life in multiple musculoskeletal diseases: SF-36 and EQ-5D in the DMC₃ study. Annals of the Rheumatic Diseases. 2004;63(6):723.
11. Arvidsson S, Arvidsson B, Fridlund B, Bergman S. Health predicting factors in a general population over an eight-year period in subjects with and without chronic musculoskeletal pain. Health and quality of life outcomes. 2008;6:98.
12. Bergman S, Jacobsson LT, Herrstrom P, Petersson IF. Health status as measured by SF-36 reflects changes and predicts outcome in chronic musculoskeletal pain: a 3-year follow up study in the general population. Pain. 2004;108(1-2):115-23.
13. Andersson HI, Ejlertsson G, Leden I, Scherstén B. Impact of chronic pain on health care seeking, self care, and medication. Results from a population-based Swedish study. Journal of epidemiology and community health. 1999;53(8):503-9.
14. Gerdle B, Björk J, Henriksson C, Bengtsson A. Prevalence of current and chronic pain and their influences upon work and healthcare-seeking: A population study. Journal of Rheumatology. 2004;31(7):1399-406.
15. Blyth FM, March LM, Brnabic AJM, Cousins MJ. Chronic pain and frequent use of health care. Pain. 2004;111(1-2):51-8.
16. Bair MJ, Robinson RL, Katon W, Kroenke K. Depression and Pain Comorbidity: A Literature Review. Archives of Internal Medicine. 2003;163(20):2433-45.
17. Fishbain DA, Cutler R, Rosomoff HL, Rosomoff RS. Chronic pain-associated depression: antecedent or consequence of chronic pain? A review. The Clinical journal of pain. 1997;13(2):116-37.

18. Tunks ER, Crook J, Weir R. Epidemiology of chronic pain with psychological comorbidity: Prevalence, risk, course, and prognosis. Canadian Journal of Psychiatry. 2008;53(4):224-34.
19. SBU. Metoder för behandling av långvarig smärta. En systematisk litteraturöversikt.: Statens beredning för medicinsk utvärdering (SBU); 2006. Contract No.: 91-85413-08-9.
20. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: scientific advances and future directions. Psychological bulletin. 2007;133(4):581-624.
21. Linton SJ. A review of psychological risk factors in back and neck pain. Spine. 2000;25(9):1148-56.
22. Bergman S. Psychosocial aspects of chronic widespread pain and fibromyalgia. Disability and Rehabilitation. 2005;27(12):675-83.
23. Eriksson M, Lindström B. Antonovsky's sense of coherence scale and the relation with health: A systematic review. Journal of epidemiology and community health. 2006;60(5):376-81.
24. Ware Jr JE, Gandek B. Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) Project. Journal of Clinical Epidemiology. 1998;51(11):903-12.
25. Antonovsky A. The structure and properties of the sense of coherence scale. Social Science and Medicine. 1993;36(6):725-33.
26. Lundberg O, Peck MN. A simplified way of measuring sense of coherence: Experiences from a population survey in sweden. European Journal of Public Health. 1995;5(1):56-9.
27. Chiesi F, Bonacchi A, Primi C, Toccafondi A, Miccinesi G. Are Three Items Sufficient to Measure Sense of Coherence? European Journal of Psychological Assessment.0(0):1-9.
28. Chumbler NR, Kroenke K, Outcalt S, Bair MJ, Krebs E, Wu J, et al. Association between sense of coherence and health-related quality of life among primary care patients with chronic musculoskeletal pain. Health and quality of life outcomes. 2013;11(1).
29. Lillefjell M, Jakobsen K, Ernstsen L. The impact of a sense of coherence in employees with chronic pain. Work. 2015;50(2):313-22.
30. Kivimäki M, Feldt T, Vahtera J, Nurmi JE. Sense of coherence and health: Evidence from two cross-lagged longitudinal samples. Social Science and Medicine. 2000;50(4):583-97.
31. Eriksson M, Lindstrom B. Antonovsky's sense of coherence scale and its relation with quality of life: a systematic review. Journal of epidemiology and community health. 2007;61(11):938-44.
32. Anke A, Damsgård E, Røe C. Life satisfaction in subjects with long-term musculoskeletal pain in relation to pain intensity, pain distribution and coping. Journal of Rehabilitation Medicine. 2013;45(3):277-85.
33. Jensen MP, Turner JA, Romano JM, Karoly P. Coping with chronic pain: a critical review of the literature. Pain. 1991;47(3):249-83.
34. Suominen S, Helenius H, Blomberg H, Uutela A, Koskenvuo M. Sense of coherence as a predictor of subjective state of health results of 4 years of follow-up of adults. Journal of Psychosomatic Research. 2001;50(2):77-86.

35. Vlaeyen JWS, Linton SJ. Fear-avoidance and its consequences in chronic musculoskeletal pain: A state of the art. Pain. 2000;85(3):317-32.
36. Wiesmann U, Dezutter J, Hannich HJ. Sense of coherence and pain experience in older age. International Psychogeriatrics. 2014;26(1):123-33.
37. Togari T, Yamazaki Y, Nakayama K, Shimizu J. Development of a short version of the sense of coherence scale for population survey. Journal of epidemiology and community health. 2007;61(10):921-2.
38. Schumann A, Hapke U, Meyer C, Rumpf HJ, John U. Measuring sense of coherence with only three items: a useful tool for population surveys. British journal of health psychology. 2003;8(Pt 4):409-21.