DEGREE PROJECT

Communication and kinesiophobia

Nocebic terms in the language used by healthcare professionals treating patients with low back pain

A quantitative survey

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Physiotherapy, bachelor's level
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Abstract:

Background: Low back pain is a common muskuloskeletal issue. Kinesiophobia constitutes as excessive fear of movement and has been associated with greater levels of pain. Nocebic terms has been found to influence kinesiophobia. **Purpose:** The purpose of this study was to investigate the participants' experiences with low back pain and nocebic terms, and if the language use of the healthcare professionals correlated with negative beliefs. **Method:** A digital survey was sent out to individuals with low back pain who had visited a healthcare professional. The survey included questions from Tampa Scale of Kinesiophobia, and questions about nocebic terms and the understanding of them. Participants were recruited via Luleå University of Technology and Facebook. **Results:** The study included a total of 51 participants. In the kinesiophobic group, there was 13 participants, and the most occurring terms were injury, disc herniation, and wear and tear. In the non-kinesiophobic group, there was 38 participants, and the most occurring terms were weakness, pinched nerve and bad posture. **Conclusion:** No strong correlation was found between language use and kinesiophobia, thus challenging the hypothesis that language use has an influence on patients' beliefs. The most occurring nocebic terms differed between the kinesiophobic group and non-kinesiophobic group.

Key words: communication, kinesiophobia, low back pain, nocebic terms

Background

Low back pain is a common musculoskeletal issue (1). The lifetime prevalence in the western world is approximately 80%, although 90% of those affected do not suffer any long-term consequences. However, recurrence of low back pain is widespread. A low level of education, physical inactivity, genetic factors, physically demanding working environments and stressful working environments are all contributory risk factors. Regarding the 10% that develop long-term chronic low back pain, a psychological factor such as fear-avoidance seem to be more significant (1).

Fear-avoidance is a term and a psychiatric model describing how psychological factors can contribute to certain individuals developing and maintaining chronic musculoskeletal pain (2). Individuals that interpret their pain as threatening and frightening are at greater risk of developing avoiding behaviors, which over time may result in depression, chronic pain, and a decline in physical functioning (2). Furthermore, individuals with pain-related fear are at greater risk of becoming sensitized to painful stimuli if their interactions with healthcare professionals result in increased anxiousness (3). A term relating to fear-avoidance is *kinesiophobia* which specifically constitutes an excessive, irrational and debilitating fear of movement. Greater levels of kinesiophobia have been associated with greater levels of pain (4).

Therefore, it seems that the communication between healthcare professionals and patients can significantly influence the patients' situation. Specific terms that healthcare professionals use to explain pain might be counterproductive, since the patient might interpret these terms as negative and become more fearful (5). This is known as a *nocebo effect,* and it describes how negative beliefs and expectations can result in a worsening of symptoms and worse outcomes (1). Healthcare professionals are at times not aware of the potential nocebo effect that might occur due to the use of specific terms (5). In one study, 130 participants with persistent low back pain answered questions about their pain. Common beliefs were that their low back pain was permanent, complex, negative, and due to their bodies being broken. 83% of the participants also indicated that they attained these negative beliefs from healthcare professionals (6). It is not uncommon for the lower back to be viewed as a particularly fragile structure that needs protection. Likewise, individuals with recurrent and chronic low back pain commonly tend to have negative views about the future and the back's ability to heal (7).

Regarding physiotherapy, studies have found that physiotherapists with fear-avoidance and kinesiophobic beliefs might transfer these beliefs to their patients (8). Kinesiophobic beliefs have also been found to influence physiotherapists' behavior in clinical practice, making them less likely to prescribe treatment and provide information according to evidence-based clinical guidelines (9). Therefore, kinesiophobic beliefs have a potential risk of negatively influencing rehabilitation, resulting in prolonged pain and disability for patients. Not adhering to clinical guidelines also has a significant financial impact on society, because it increases the costs of both healthcare and social support systems (10).

In conclusion, psychological factors seem to be able to predict the severity of low back pain among affected individuals. Also, communication and language use seem to influence the psychological factors (11). Therefore, a correlation between healthcare professionals' use of language and patients' beliefs about their pain is likely to exist. Considering that most of the studies mentioned above on fear-avoidance and kinesiophobia have a qualitative design, and due to the lack of quantitative studies on the topic in general, it seems relevant to conduct a quantitative study to see if there is an objective relationship between the two variables.

Purpose

The purpose of this study is to investigate the participants' experiences with low back pain and nocebic terms, and if the language use of the healthcare professionals correlates with negative beliefs.

Problem statements

1. Is there a correlation between the language use of the healthcare professionals and kinesiophobia among the participants?
2. Which are the most occurring nocebic terms among the participants?

Method

Inclusion criteria

Student at Luleå University of Technology, or part of one of the writers' social networks through their Facebook-account. Participants that had suffered from low back pain and that had visited a healthcare professional regarding their low back pain.

Exclusion criteria

Participants that did not understand the language of the survey.

Study design, data collection

A quantitative approach was chosen to answer the problem statements. This approach serves to objectively investigate phenomena at the group-level. The study design was cross-sectional, and data was collected via a digital survey. This design was chosen to be able to reach a relatively large population. The writers of this study contacted approximately 40 faculty program directors and professors at the Luleå University of Technology with the intent of distributing a digital EvaSys-survey. Four of the faculty program directors agreed to distribute the study to their students. Moreover, the Evasys-survey was distributed via one of the writers' Facebook-account, giving access to the writers' social network. Due to the nature of the distribution, no reminder was sent out to the population. Each answered survey was included in the study. An additional information letter about the study and contact information to the writers was also included in the survey (Appendix 1). The language in the survey and the information letter was Swedish to make it more accessible to the population (Appendix 2)

The survey contained questions about the participant characteristics (questions 1-2), and selected questions from the Tampa Scale of Kinesiophobia (TSK) (question 3.1-3.6). TSK is a questionnaire with confirmed reliability and validity regarding questions about fear-avoidance

(12, 13). The survey also contained two questions constructed by the writers of the study (question 4-5). Question 4 served to add additional information needed to answer the purpose and problem statements of the study. The reliability and validity of this question have not been tested. However, the question was inspired by several previous studies researching communication and its influence on patient beliefs and expectations (5, 7, 11). Question 5 was a follow-up question that served to examine the participants' understanding of the terms used by the healthcare professional.

TSK is composed of 17 questions in its original form. The writers of this study chose the 6 most relevant questions to make the survey more accessible. The original questionnaire has 17-68 points, with 37 points or above determining kinesiophobia. The 6 questions chosen by the writers of his study have 6-24 points. To determine the kinesiophobia score for 6 questions the writers divided 17 questions by 6 questions which equals 2,8. The number of points to determining kinesiophobia is 2,8 times greater in the original questionnaire. In this study, the score for determining kinesiophobia was calculated by dividing 37 points by 2,8 which equals 13 points.

TSK uses a scoring range of 1 to 4, with 1 meaning *"Strongly disagree"* and 4 meaning "*Strongly agree"*. The same scoring range was used for question 5.

Method of analysis

The collected data were analyzed with Microsoft Excel, and it was done as a descriptive analysis. The presentation of the study consisted of nominal data and interval data. Question 1, question 2 and question 4 was nominal data and was calculated and presented in number (n=) and percentage (%). The terms in question 4 were presented in total, and as most occurring terms in the sub-groups. Question 3.1-3.6, as well as question 5, was ordinal data and was calculated and presented with a mean and standard deviation. To answer the purpose of this study, the correlation between TSK score and number of terms chosen as well as between TSK score and understanding of terms were calculated in the total sample and the sub-groups.

Results

In total, 51 participants answered the survey, 29 males and 22 females. 56,9% of the participants were male. The largest group of participants were 32 years old or above with 41,2%. (Table 1)

Table 1 - Baseline characteristics of the participants presented in number and percentage (n=51)

	Number	**Percentage**
Male	29	56,9%
Female	22	43,1%
Age 18-22	11	21,6%
Age 23-27	10	19,6%
Age 28-32	9	17,6%
Age +32	21	41,2%

TSK score and understanding of nocebic terms

The mean value of 1,4 to 2,3 on questions 3.1 to 3.6 shows that most of the participants disagreed with the statements. The mean value of 2,8 on question 5 shows that most of the participants agreed with the statement, which indicates that they understood the terms (Table 2). In total, 38 out of 51 participants scored 12 or lower on questions 3.1 to 3.6, which indicates no kinesiophobia. 13 out of 51 participants scored 13 or higher on questions 3.1 to 3.6, which indicates kinesiophobia.

Table 2 – Questions 3.1-3.6, and question 5 presented in mean and standard deviation

Question	**Mean**	**Standard deviation**
3.1 Pain always means I have injured my body	1,7	0,9
3.2 I am afraid that I might injure myself accidentally	2,3	1,1
3.3 Simply being careful that I do not make any unnecessary movements is the safest thing I can do to prevent my pain from worsening	1,9	1,0
3.4 I wouldn't have this much pain if there weren't something potentially dangerous going on in my body	2,0	1,1
3.5 I can't do all the things normal people do because it's too easy for me to get injured	1,4	0,8
3.6 My accident has put my body at risk for the rest of my life	1,6	0,9
5. I understood the meaning of the term/terms when the healthcare professional used it/them	2,8	1,0

Nocebic terms

Among all the participants, the most occurring terms were pinched nerve (31,4%) and weakness, bad posture and disc herniation/bulge (29,4%). 15,4% of the participants had not encountered any of the included terms and chose the option *"none of these terms"* (Figure 1)

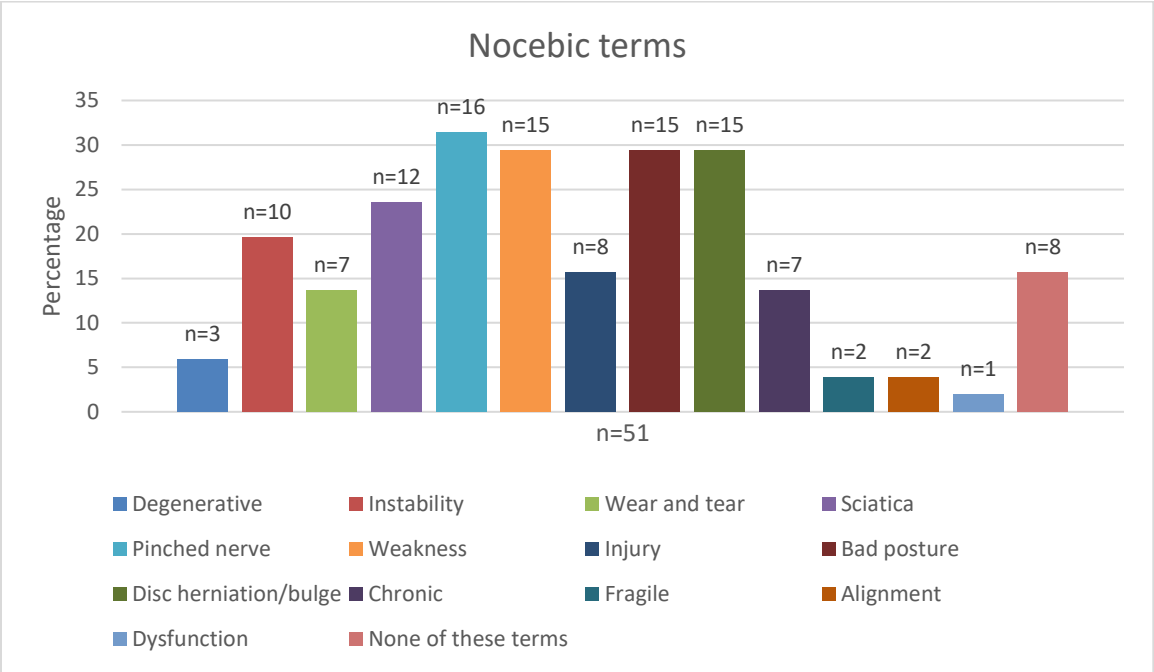

Figure 1 - Answered terms by all participants presented in number and percentage

Among the participants in the kinesiophobic group, the most occurring terms were injury and disc herniation (38,5%) and wear and tear (30,8%). 30,8% of the participants had not encountered any of the included terms and chose the option *"none of these terms"* (Figure 2). Among the participants in the non-kinesiophobic group, the most occurring terms weakness (36,8%), pinched nerve (34,2%) and bad posture (31,6%). 10,5% of the participants had not encountered any of the included terms and chose the option *"none of these terms"* (Figure 3).

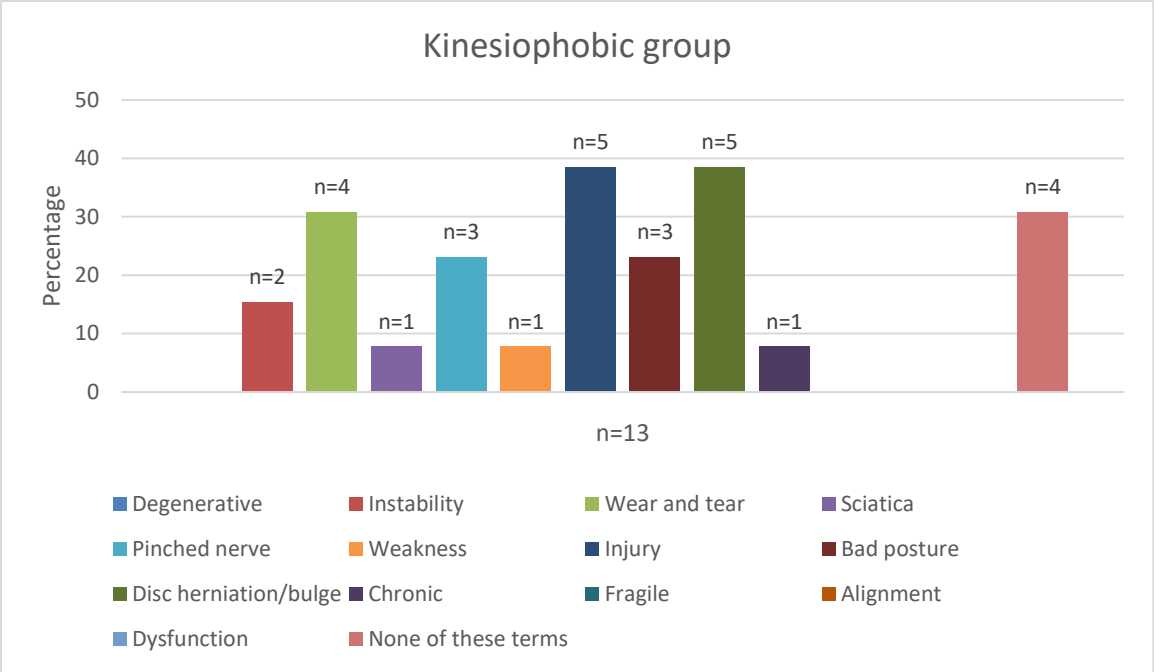

Figure 2 - Most occuring terms among kinesiophobic participants presented in number and percentage

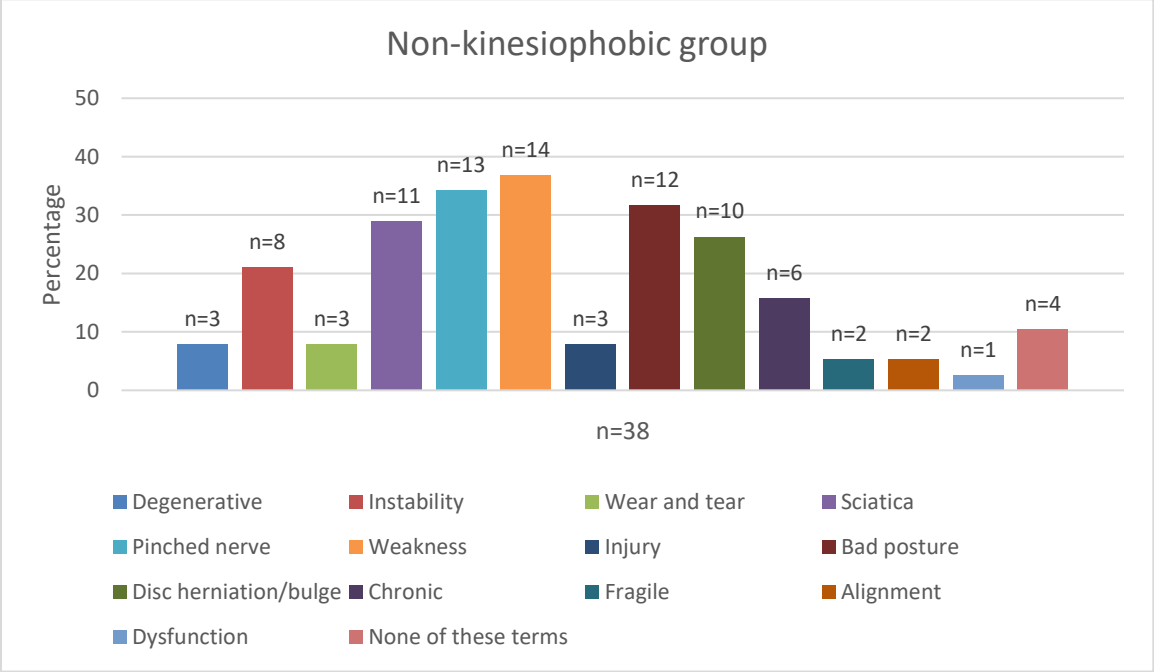

Figure 3 - Most occuring terms among non-kinesiophobic participants presented in number and percentage

Correlation between TSK score and nocebic terms

The study found a weak negative correlation (-0,17) between total-group TSK score and number of terms. This means that as TSK score increased, the number of terms decreased. Between total-group TSK score and understanding terms, the study found a weak negative correlation (-0,26). This means that as TSK score increased, understanding of terms decreased.

Among the kinesiophobic group, the study found a moderate positive correlation (0,40) between having kinesiophobia and number of terms. This means that as TSK score among this group increased, the number of terms increased. The study also found a moderate positive correlation (0,60) between TSK score among this group and understanding of terms. This means that as TSK score among this group increased, understanding of terms increased.

Among the non-kinesiophobic group, the study found a weak negative correlation (-0,33) between not having kinesiophobia and number of terms. This means that as number of terms increased, TSK score among this group decreased. The study also found a weak negative correlation (-0,40) between not having kinesiophobia and understanding of terms. This means that as understanding of terms increased, TSK score among this group decreased. (Table 3)

Table 3 - Correlation coefficients between key variables for the total-group and sub-groups (= p < 0,05)*

Parameter	Number of participants	Number of terms	Understanding terms
TSK score	51	-0,17	-0,26
Kinesiophobia	13	0,40	0,60*
Non-kinesiophobia	38	-0,33*	-0,40*

Discussion

Results discussion

This study did find a few statistically significant correlations between language use and kinesiophobia for participants with low back pain. In the kinesiophobic group, understanding of terms was found to have a moderate positive correlation. This correlation was unexpected and might be due to the low number of 13 participants in the group. In the non-kinesiophobic group, the number of terms had a weak negative correlation, and understanding of terms had a moderate negative correlation. Even though these findings were all statistically significant, none of the correlations were strong, which might be due to a small sample size of 51 participants. Another explanation might be that there simply is no correlation between language use and kinesiophobia. However, this explanation seems unlikely seeing as multiple qualitative studies have found that healthcare professionals' language use can influence patients' beliefs on their low back pain (5, 7, 14-15).

Regarding the moderate positive correlation that was found between having kinesiophobia and the number of terms used by the healthcare professional, the writers speculate that there might be a compounding effect with using several nocebic terms, among patients who has indications of kinesiophobia. The participants in the kinesiophobic group presented a higher TSK score when the health care professional used an increasing number of terms. However, it should be noted that this correlation was not statistically significant.

An interesting observation is that the most occurring terms differ between the kinesiophobic and non-kinesiophobic groups. In the kinesiophobic group, the most occurring terms were disc herniation/bulge, injury and wear and tear. One common denominator with these terms is that they are all descriptions of actual structural damage. The writers speculate that these terms might often be accompanied by a warning from the healthcare professional. Also, from the perspective of the patient, these terms might be interpreted as dangerous. In fact, one qualitative study reported that the diagnosis of disc herniation seemed to be the most feared by patients with low back pain (15). Another qualitative study found that beliefs about *"wear and tear"* resulted in reduced activity levels or avoidance of activities among patients with knee osteoarthritis (16).

In the non-kinesiophobic group, the most occurring terms were pinched nerve, weakness, and bad posture, which seems to be less focused on actual structural damage. One common

denominator could be that they are all more vaguely defined diagnoses, and that they often come with a proposed solution from the healthcare professional (i.e., strengthening exercises and stretching). In one qualitative study, participants often described weakness of the core musculature and certain postures as the reason for their low back pain (7). A more extreme example reported in another qualitative study describes a woman having an abortion due to being told by multiple physiotherapists that she had significant weakness of the core musculature (14).

Method discussion

This study has several limitations that should be considered. The number of participants was only 51 which limits the ability to draw definite conclusions from the analyzed data. Furthermore, due to different circumstances with gathering data, it was not possible to forward a reminder to the population about participating in the survey.

The study did not include the TSK questionnaire in its original form, which does affect the validity and reliability of the included questions. The validity and reliability are also affected by the writers' own calculations regarding the score for determining kinesiophobia

Some of the participants did score high on the question regarding understanding of terms, even though they answered that they had not heard any of the included terms. Therefore, the writers of this study speculate on whether the participants misunderstood the question, or if they simply had heard other terms from their healthcare professional.

One strength of this study is that the included nocebic terms are based on previous studies discussing the effects of language use, and many of these studies did find potentially harmful consequences from the use of different terms.

Clinical implications

Based on some of the most occurring nocebic terms, the following are possible scenarios that physiotherapists might encounter in the clinic. The purpose of these scenarios is to offer guidance to physiotherapists on how to manage them in accordance with the knowledge of kinesiophobia and low back pain.

Disc herniation, disc degeneration and wear and tear

A patient presents to the clinic with chronic low back pain and MRI results indicating a disc herniation and disc degeneration. Furthermore, an explanation of *"wear and tear"* has been provided to the patient during a previous encounter with a healthcare professional. In this

case, the physiotherapist can highlight the fact that disc herniations have a high probability of spontaneous regression and can completely resolve after conservative treatment (17). Furthermore, the physiotherapist can highlight that MRI findings of disc degeneration have a weak association with future pain and disability (18-19). MRI findings of disc herniations and disc degeneration are in fact present in asymptomatic populations as well, indicating that they are most likely a normal part of ageing, and often might be incidental and not responsible for the patients' symptoms (20-21). Incorporating reassurance and education about the nature of low back pain is essential to reduce the fear-avoidance commonly associated with chronic low back pain. It will most likely allow the physiotherapist to successfully focus on other recommended treatment strategies as well (i.e., encouragement to avoid bed rest, stay active and continue with usual daily activities, including work) (22).

Weakness, bad posture

A patient presents to the clinic with chronic low back pain. An explanation of bad posture and weakness of the core musculature has been provided to the patient during a previous encounter with a healthcare professional. Posture correction and core stability exercises are two common treatment regimens often prescribed in conjunction with these diagnoses. This patient, however, is experiencing trouble adhering to this specific treatment regimen. In this case, the physiotherapist can highlight that there are natural variations in spinal curvatures (i.e., posture) and the fact that no single posture is strongly associated with pain (23). The physiotherapist can also highlight that core stability exercises are not superior to other forms of exercise in the management of low back pain (24). This allows for a more patient-centered approach that considers the patient's own exercise preferences. Furthermore, instead of potentially reinforcing fear related to certain postures, the physiotherapist can encourage the patient to explore different postures while reassuring the patient that it is safe.

Conclusion:

No strong correlation was found between language use and kinesiophobia, thus challenging the hypothesis that language use has an influence of patients' beliefs. The most occurring nocebic terms differed between the kinesiophobic group (injury, disc herniation, and wear and tear) and non-kinesiophobic group (weakness, pinched nerve and bad posture).

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Appendix 1 – information letter to the participants:
Information till försökspersoner
2021–10–8

Information och förfrågan om medverkan i examensarbete:
Hej! Är du intresserad att delta i en studie om ländryggssmärta? Vi söker dig som har haft ländryggssmärta och som har sökt vård för detta, till exempel hos en läkare, fysioterapeut eller kiropraktor. Enkäten innehåller 5 frågor och det tar bara ca 2–3 minuter att besvara dem!

Bakgrund och syfte med studien
Syftet med studien är att undersöka om det finns ett samband mellan rörelserädsla och hur vårdpersonal pratar med sina patienter om ländryggssmärta.

Hur går undersökningen till
Ni kommer att få svara på enkät om ländryggssmärta. När ni har skickat in enkäten så kommer vi att använda svaren för att se om det finns ett samband mellan de olika frågorna.

Hantering av data och sekretess
Det är helt anonymt att delta i studien! Ni behöver bara uppge kön och ålder. Det går alltså inte att identifiera er som svarat på enkäten. Vi och vår handledare är de enda som kommer att se svaren. När svaren från enkäten presenteras i vår studie kommer man inte att kunna identifiera er som deltagit.

Deltagande är frivilligt
Det är helt frivilligt att delta i studien. Ni kan när som helst avbryta er medverkan fram tills att enkäten blivit inskickad. När enkäten väl blivit inskickad har ni givit samtyckte till att delta och kan inte längre avbryta er medverkan.

Information om studiens resultat
Studien kommer att publiceras och finnas tillgänglig vid Luleå tekniska universitets hemsida från januari 2022.

Mer information
Vid frågor eller problem kan ni ta kontakt med oss som genomför studien.

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Peter Bengtsson
Handledare, biträdande professor

Appendix 2 – Survey questions

Enkätmall:

1. Ange ditt kön

[ ] Tjej [ ] Kille

2. Ange din ålder

[ ] 18–22 [ ] 23–27 [ ] 28–32 [ ] Över 32

3. Reflektera över din ländryggssmärta

3.1. Det smärtproblemet jag råkat ut för har gjort att jag riskerar kroppsskador resten av livet

1 2 3 4

Håller inte med Håller med helt och hållet

3.2. Smärta betyder alltid att jag har skadat någon del av kroppen

1 2 3 4

Håller inte med Håller med helt och hållet

3.3. Jag är rädd att jag oavsiktligt kan skada mig.

1 2 3 4

Håller inte med Håller med helt och hållet

3.4. Det säkraste sättet att undvika att smärtan förvärras, är helt enkelt att vara försiktig och inte göra några onödiga rörelser.

1 2 3 4

Håller inte med Håller med helt och hållet

3.5. Jag skulle inte ha så här ont om det inte vore något allvarligt fel i kroppen.

1 2 3 4

Håller inte med Håller med helt och hållet

3.6 Jag kan inte göra allt det som normala människor gör, eftersom jag så lätt kan skada mig.

1 2 3 4

Håller inte med Håller med helt och hållet

4. Har du fått dina besvär beskrivna med någon/några av följande termer?

[ ] Degenerativt	[ ] Klämd nerv	[ ] Diskbråck/buktning	[ ] Dysfunktion
[ ] Instabilitet	[ ] Svaghet	[ ] Kroniskt	
[ ] Förslitning	[ ] Skada	[ ] Skör	
[ ] Ischias	[ ] Dålig hållning	[ ] Alignment	[ ] Ingen av följande

5. Reflektera över ditt möte med vårdpersonalen

5.1 Jag förstod termen/termerna när vårdpersonalen använde den/dem

1	2	3	4
Håller inte med			Håller med helt och hållet