



The Relationship between Pain and Disability in Patients with Low Back Pain

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Abstract. Low Back Pain (LBP) is a musculoskeletal problem that contributes significantly to disability in general. The main complaint of patients who experience with LBP is pain. Pain is complex, multidimensional, individual, and subjective. Patients who experience the pain of low back pain can disrupt or inhibit patients in carrying out daily activities even this pain can be caused factor in the patient for disability. The purpose of this study was to determine the relationship between pain and disability in patients with low back pain. This study uses quantitative methods with a correlation design. The number of samples in this study was 40 respondents, where the sampling technique used was nonprobability sampling with the sampling methods was consecutive sampling. The result of this study showed that there was a significant relationship between pain ($p= 0,000$, $p<0,05$) and $r= 0,663$, which means it has a strong correlation between pain and disability. This study concludes that there is a significant relationship between pain and disability in patients with LBP. This study recommends further research to investigate the association of pain duration with disability in a patient with LBP but in a larger sample

Keywords: pain, disability, low back pain



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INTRODUCTION

Low Back Pain (LBP) is a musculoskeletal problem that currently has the rank position of 12 out of the 21 regions of the country in the world and contributes as an expense in the two countries from 21 regions of the country namely the countries of Western Europe and Australia (1). The incidence of LBP based on patient visits to several hospitals in Indonesia ranges from 3-17%. The prevalence of LBP in Sadikin's hospital, of the 112 respondents who suffered from LBP, amounted to 89 people with a percentage of 79.5% (2).

The main complaint of patients with LBP is pain. Pain is a complex, multidimensional, individual, and subjectively. Pain is an unpleasant feeling and emotional experience connected with tissue damage. Chronic pain is constant or intermittent pain that lasts more than six months or more (3). Complaints of pain patients can be seen from how pain is felt by someone who is often called pain intensity.

The prevalence of pain intensity in some countries such as China, Ghana, India, Mexico, the Russian Federation, and South Africa in research (4) stated that the highest intensity of pain occurred on the respondents came from India that is equal to 12%, and the lowest pain intensity occurred on the respondents come from a country South Africa and China is equal to 4%. Research conducted in the United States by (5) states that among 278 respondents reported that 32% of respondents experiencing mild pain, 46%, and 21% moderate pain severe pain.

Research conducted in Surakarta illustrates that LBP events with 6-10 pain score highest (46.8%) and least with a percentage of 9.3%, while the incidence of LBP highest pain score 0-5 with a rate of 59.3% (6). Another study conducted at the General Hospital Haji Adam Malik showed that patients with LBP experience pain intensity with an average score of 4.96 (Nasution, Lubis, Amelia, and Hocin, 2018). Spreading the pain has a linear relationship to functional impairment (7), where the intensity of pain can act as a mediator between pain and disability (8).

LBP is one cause of disability in some countries in 2015 (9) and ranks third cause of disability (9). Based on research conducted by (10) in Brazil with the number of 117 patients with chronic LBP showed that 80.7% of patients experienced moderate to severe disability. The prevalence of disability in India experienced by patients with LBP was 95.19%. In China, people with disabilities in 1990 were 6.2 million, and the number increased in 2016 to 7.7 million (11). Research conducted by Voon on 63 students suffering from LBP in Malaysia showed that 87.3% of students experienced a minimal disability, 12.7% had a moderate impairment (12). In Indonesia, the prevalence of disability in patients with LBP in the working area Payangan Gianyar Public Health Unit is 91.7% of 48 patients complained of having a minimal disability, and 8.3% of patients complained of moderate impairment (13).

Complaints LBP patients who experience disabilities caused by the majority because of pain (14). Based on research conducted by Horgas stated that the pain associated with high functional disability and report that the experience of pain that describes pain intensity, pain duration, and location of the pain can affect disability (15). Duenas also explains the same thing in his research that states that impairment may be influenced by the pain experienced by the individual (16). Disability is not only a health problem but also a complex phenomenon that describes the interaction between the individuals and the community where they live (25). Besides, disability is a physical or mental disorder that can affect the ability to perform daily activities (26).

Various factors influence many disabilities. Based on research conducted by Davis (2013) states that factors that can affect disability, especially in LBP patients, are an increase in LBP duration, high pain intensity scores, high fear scores in avoiding pain, and slower stability of individual movement speed. It can be concluded that the case of low back pain enhances from year to year in several countries. The common complaint of the patient who was suffering low back pain is a pain. Patients who experience the pain of low back pain can disrupt or inhibit patients in carrying out daily activities even this pain can be caused factor in the patient for disability. Disability experienced by patients can be seen from the ability to perform self-care, lifting, walking, sitting, standing, sleeping, doing social activities, traveling, and doing work at home. Because of the pain that patients experienced and the effect on their daily living, the researcher wanted to know the relationship of pain intensity with disabilities in a patient with low back pain.

OBJECTIVE

The study aimed to determine the relationship between pain and physical disability in patients with low back pain.

METHOD

This type of research is quantitative descriptive with a cross-sectional study design that aims to determine the relationship of pain with disabilities in patients with LBP. A study was conducted at the University of Sumatera Utara hospital in March until May 2019. The number of samples in this study was 40 people with low back pain. The sampling technique used is nonprobability sampling with the sampling method that is a consecutive sampling. This method is a method of sample selection is done by selecting all the people who met and meet the criteria of the sample until the desired number of samples met (17).

The inclusion criteria of this study were: (a) Patients with LBP more than two weeks or chronic LBP, (b) Patients with good communication and cooperation. Data were collected by using the Numeric Rating Scale to measure the pain intensity and the Oswestry Low Back Pain Disability Questionnaire Developed by Couper, Davis, and O'Brien (1980). Three experts had validated the Numeric Rating Scale, and the Oswestry Low Back Pain Disability with the validation value is 0,93. The researcher also did the reliability and analyzed it by using the computer with the reliability value is 0,86. It can be concluded that the questionnaire is valid and reliable.

Before collecting data, the ethical clearance had been approved by the Ethics Committee of the Faculty of Nursing, University of Sumatera Utara. The researcher gave informed consent to the respondents before they studied. Informed consent is a way of agreement between the researcher and the respondents. The informed consent was required to all participants who willing to participate in this study. The data analysis used is Spearman's rho. Spearman's rho using to testing hypotheses with correlation design. It is the data analysis to find out the relationship between pain and disability in patients with low back pain

RESULTS

Characteristic of respondents

The result of this research showed that the most common inpatient suffering low back pain is at 46-65 years old. The woman is much more than the man in this research. More than half (57.5%) of the respondents had a high school education, while less than half (47.5%) of the respondents were housewife. Based on the results of LBP research experienced by the majority of respondents caused by trauma and sitting for a long time. The frequency distribution characteristics of the demographic data of the respondents and related factors can be seen in the table below

Table 1. Characteristic of respondents

Variables	f	%
Age		
Early adulthood (26-35 years)	1	2.5
Adults late (36-45 Years)	3	7.5
Elderly (46-55 Years)	12	30
Old (56-65 Years)	12	30
Very Old (> 65 years)	12	30
Gender		
Female	30	75
Male	10	25
Education		
Primary High School	4	10
Senior High School	4	10
High School or equivalent	23	57.5
College	9	22.5
Occupation		
Does not work	19	47.5
Entrepreneur	7	17.5
Government employees	5	12.5
Farmers / Labor	5	12.5
General employees	4	10
Trigger factors of LBP		
Trauma	14	35
Sitting for a long time	12	30
Heavy lifting	10	25
HNP disease	4	10

Pain intensity among patients with low back pain

Based on the results showed that more than half of the respondents (60%) of patients with LBP experience moderate pain intensity. The frequency distribution of the intensity of pain can be seen in the table below.

Table 2. Frequencies and percentage of Pain Intensity of the Patients with LBP

Pain intensity	f	%
Mild (1-3)	16	40
Moderate (4-6)	24	60

Frequency of disability among patients with low back pain

Based on the results showed that more than half of respondents (55%) of patients with LBP disability was. Frequency Distribution of disability can be seen in the table below.

Table 3. Frequencies and percentage of Disability of the Patients with LBP

disability	f	%
Minimal (0-20%)	11	27.5
Moderate (21-40%)	22	55
Severe (41-60%)	7	17.5

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The results showed that there is a significant correlation between the intensity of the pain ($\alpha = 0.000$, $p < 0.05$) with $r = 0.663$, which means having a strong relationship with disabilities. Spearman's rho analysis results can be seen in the table below.

Table 4. The relationship between pain intensity and disability of the Patients with LBP

variables	r	p-value
Pain intensity	.663	0.000

DISCUSSION

Pain and disability are some of the problems that can be caused by LBP and able to influence a person's life. Based on the age of respondents, indicate that the age of the population is aged elderly respondent the beginning, the end, and the elderly. It can be associated with the intensity of pain experienced where based on the research results obtained that more one-half of respondents (60%) experienced moderate pain intensity. Experienced pain intensity will decrease gradually in the elderly (18). This is because of advanced age, or older people are able to keep a better psychological state in the facing of pain with suggested him that they were able to maintain daily activities despite being in pain (19). Gender could also be one of the factors that may affect the intensity of pain. In accordance with the socio-cultural beliefs about femininity and masculinity is a matter that has a role in responding to pain (20). Feminity associated with a higher level of sensitivity in responding to pain and is one of the contributing factors in women in demonstrating clinical pain (21). This type of work can increase the risk of an increased risk of LBP, which will cause pain. This type of work can be demanding to sit long and tense attitude repeated in the same position will shorten the muscle and will eventually cause pain (22), Sitting and standing in a long time based on the results of research conducted by Arslan say that it can increase the risk of LBP (23).

The results showed that there is a significant correlation between the intensity of the pain ($\alpha = 0.000$, $p < 0.05$) with $r = 0.663$, which means having a strong relationship with disabilities. Disability is limitation inactivity and decreases participation. Disability is not only a health problem but a complex phenomenon that describes the interaction between the individual communities where he lives (24). Disability is a physical or mental disorder that can affect the ability to perform activities of daily living (25). The limitation is a condition or function that is rated significantly impaired depending on one's standards (26).

Complaints LBP patients who experience disabilities caused by the majority because of pain (14). Dueñas et al., in his research that state that impairment may be influenced by the pain experienced by the individual (16). Factors that may affect disability in Snook are a factor of personal, social, and economic (27). Personal factors include age, physical strength, previous injury, levels of activity and conditions, intolerance, and psychological pain. Social factors include job satisfaction, relationships in employment, income, lack of control overwork, and work environment uncomfortable. Based on research conducted by Davis et al. stated that the factors that can affect the patient's disability, especially in LBP is an increase in the duration of LBP, high pain intensity scores, scores in height to avoid pain and fear in the slower the speed stability of the movement of individuals (28).

Disability has a significant relationship with the intensity of pain and disability would affect someone's level (29) because of factors that can affect the patient's disability, especially in LBP is higher pain intensity score (28), Pain intensity, pain duration and frequency of pain

acts as a mediator on disability (8), Frequency of pain can give an idea of the experience of pain and improve the prediction of the functional effect (30), Pain frequency and duration of pain can also increase susceptibility where weakness characterized by physiological decline and increase vulnerability to minor stressors that can lead to disability (31). Based on research conducted by Rodríguez-Sánchez et al. found no significant relationship between the frequency of pain, pain intensity, and pain location for a high level of weakness at an older age (32). Therefore it can be concluded that pain intensity, pain duration, and frequency of pain associated with a disability experienced by patients with LBP

CONCLUSION

The results showed that there was a significant relationship between pain with disabilities. Based on the results obtained, this study recommends further studies to investigate the relationship of pain duration with disability in a patient with LBP but in a larger sample.

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