



Positive Self-Talk on Pain Intensity and Pain Interference in Low Back Pain Patients

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ABSTRACT

Low back pain (LBP) is a musculoskeletal disorder that can cause pain and limit activity in patients. Pain experienced by LBP patients has an impact on pain interference. This seems to be directly proportional, where the result of the pain felt gives discomfort to the patients and affects aspects of life. One of the non-pharmacological to reduce pain is positive self-talk. The study aimed to determine the effect of positive self-talk on pain intensity and pain interference in LBP patients. The study was quasi-experimental with an equivalent control group approach. Forty respondents were selected by consecutive sampling. Data were analyzed using a paired t-test. The results show that there was a significant difference between pain intensity (p-value 0.000) and pain interference (p-value 0.000) before and after positive self-talk intervention. Meanwhile, there was a significant difference between pain intensity (p-value 0.00) however there was no significant difference between pain interference (p-value 0.06) before and after the standard hospital procedural intervention. Furthermore, based on the results of the independent t-test, shows that there was a significant difference between pain intensity (p-value 0.0001) and pain interference (p-value 0.004) after being given positive self-talk intervention. It is recommended that positive self-talk can be given as a non-pharmacological approach to reduce pain intensity and interference in LBP patients.

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Kata kunci:

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ABSTRAK

Low back pain (LBP) merupakan gangguan muskuloskeletal yang dapat menimbulkan nyeri dan membatasi aktivitas pada pasien. Nyeri yang dialami oleh pasien LBP berdampak pada gangguan nyeri. Hal ini tampaknya secara langsung proporsional, dimana akibat dari nyeri yang dirasakan memberikan ketidaknyamanan pada pasien dan mempengaruhi aspek kehidupan. Salah satu cara nonfarmakologi untuk mengurangi nyeri adalah self-talk positif. Penelitian ini bertujuan untuk mengetahui pengaruh positive self-talk terhadap intensitas nyeri dan gangguan nyeri pada pasien LBP. Penelitian ini merupakan eksperimen semu dengan pendekatan kelompok kontrol yang setara. Empat puluh responden dipilih secara Consecutive Sampling. Data dianalisis menggunakan uji t berpasangan. Hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan antara intensitas nyeri (p value 0,000) dan gangguan nyeri (p value 0,000) sebelum dan sesudah intervensi self-talk positif. Sementara itu, ada perbedaan yang signifikan antara intensitas nyeri (p value 0,00) namun tidak ada perbedaan yang signifikan antara gangguan nyeri (p value 0,06) sebelum dan sesudah intervensi prosedur standar rumah sakit. Selanjutnya berdasarkan hasil uji independent t-test menunjukkan bahwa terdapat perbedaan yang signifikan antara intensitas nyeri (p value 0,0001)

dan gangguan nyeri (p value 0,004) setelah diberikan intervensi self-talk positif. Direkomendasikan bahwa positive self talk dapat diberikan sebagai pendekatan non farmakologi untuk mengurangi intensitas nyeri dan gangguan paten LBP.

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INTRODUCTION

Low back pain (LBP) is a very common symptom experienced by all ages (Hartvigsen et al., 2018). LBP experienced by patients often causes activity restrictions and absence from work (Patrianingrum, Oktaliansah, & Surahman, 2015). LBP is a musculoskeletal disorder that can be caused by various musculoskeletal diseases, psychological disorders, and incorrect mobilization. LBP by definition is low back pain originating from the spine, muscles, nerves, or other structures in the area (Rakel et al., 2012). Several risk factors that can cause complaints of low back pain include heredity, age, gender, posture deformity, physical activity, working period, and work portion (Silviyani et al., 2013). Andini (2015) added other factors that cause LBP such as physical tension, frequent lifting of heavy loads, and inappropriate work postures.

Global prevalence shows that as many as 7.3% or as many as 540 million people experience LBP. Based on this prevalence, LBP is now the number one cause of disability globally (Hartvigsen et al., 2018). The incidence of LBP based on patient visits to several hospitals in Indonesia ranges from 3-to 17%. The prevalence of LBP at Sadikin Hospital in Bandung, of 112 respondents who suffered from LBP, amounted to 89 people with a percentage of 79.5% (Patrianingrum et al., 2015). The main complaint of patients who experience LBP is a pain when visiting health services (Meucci, Fassa, & Xavier Faria, 2015; Potter & Perry, 2017). LBP pain is subjective, where no two individuals experience the same pain and no two events of the same pain produce identical responses or feelings in individuals. Chronic pain is constant or intermittent pain that lasts more than 6 months or more (Hinkle & Cheever, 2014)

The prevalence of pain intensity in several countries such as China, Ghana, India, Mexico, the Russian Federation, and South Africa in the study by Williams et al. (2015) showed that the highest pain intensity occurred in respondents from India, namely 12%, and the lowest pain intensity occurred in respondents from South Africa and China, namely 4%. Research conducted in America by Thiese et al. (2014) stated that among 278 respondents reported that as many as 32% of respondents experienced mild pain, 46% moderate pain, and 21% severe pain. Hengstebeck, Roskos, Breejen, Arnetz dan Arnetz (2017) stated that pain interference interferes with the ability to work and social function. Patients with high levels of interference will experience depression 5.2 times, and report anger, fear, and sadness (Bruce, Polen, & Arnett, 2007).

Pain management can be overcome with various alternatives, both pharmacological and non-pharmacological. Pain management using non-pharmacological techniques is a challenge for health workers, especially nurses. One of the non-pharmacological therapeutic approaches that can be used to reduce pain is positive self-talk. Self-talk therapy provides many advantages where through self-talk, individuals can interpret

their emotions and thoughts, change judgments and beliefs, provide reinforcement or teach themselves (Calvete & Cardeñoso, 2002).

A study conducted by Hamilton, Miedema, MacIntyre, and Easley (2011) shows that positive self-talk is an effective performance-enhancing strategy in a variety of sports and athletic tasks including dart-throwing. Positive self-talk is often used by athletes as a cognitive strategy to help maintain focus, increase motivation and cope with negative thoughts, emotions, and events. This positive self-talk intervention was also carried out by researchers to teach children how to improve coping with painful medical procedures, help adults to improve adherence to rehabilitation programs and reduce symptoms when given as part of group therapy for breast cancer patients, and can help reduce pain (Hamilton et al., 2011). The study's purpose was to determine the effect of positive self-talk on pain intensity and pain interference in LBP patients.

METHOD

Participant characteristics and research design

The inclusion criteria in this study were 1) patients diagnosed with chronic low back pain; 2) patients who were willing to become research respondents; 3) patients who were fully aware and able to answer questions; 4) could communicate well and 5) patients without cognitive impairment. Exclusion criteria in this study were 1) patients who were unable to follow instructions and 2) respondents who discontinued participation in the study for unclear reasons or did not continue the intervention until completion. The study was quasi-experimental with an equivalent control group approach.

Sampling procedures

Consecutive sampling was applied in this study. The sample was based on inclusion criteria, exclusion criteria, and dropout criteria made by the researcher. The study was conducted at an educational hospital in north Sumatera from March to July 2020.

Sample size

Determination of the number of samples in this study was to use the sample formula with an experimental study based on Supranto (2000). With this formula, it can be calculated the number of samples that are planned to be studied, namely 16 respondents. However, due to several considerations of the possibility of dropping out, the number of samples carried out in this study was 20 people for the intervention group and 20 people for the control group so the total number of samples in this study was 40 people.

Procedures

After assessing the intensity of pain and pain interference, respondents were given an intervention according to the group that had been determined. The researcher conducted an initial screening for the intervention group so that the researcher knew whether the respondents in the intervention group could follow the instructions taught by the researcher well. If there are no problems at the initial screening, the intervention is continued. Positive self-talk therapy is done every time you wake up in the morning before doing activities. The researcher explained the meaning, purpose, and steps for doing positive self-talk. Then, the researchers trained how to do positive self-talk according to the procedure for a time of 30 minutes. After the respondents in the intervention group understand and can carry out the procedures for implementing positive self-talk, the researchers asked respondents to practice it independently at home with a frequency of 1 time a day for 7 days. The researcher in this case makes a time contract with the patient that the researcher conducts a refresher session by contacting the patient every day for 7 days. This is done by researchers to review how positive self-talk procedures are and the obstacles when applying positive self-talk therapy independently. Researchers conduct discussions with respondents if respondents find obstacles when doing therapy independently. The refresher session lasts for 10 minutes. For 7 days, if a respondent in the intervention group stopped participating in the study and did not do positive self-talk independently (for example, 1 intervention), the researcher stopped the intervention and looked for respondents who matched the inclusion criteria and provided the intervention from the beginning. In the control group, if within 7 days there is a respondent who

stops participating in the study or dies, the researcher looks for the respondent again according to the inclusion criteria.

Measures

A brief pain inventory (BPI) long-form was applied to measure both pain intensity and pain interference because researchers conducted the study for one week. In measuring the intensity of pain, the researcher used questions about the pain experienced by patients in the last one week which consisted of 4 items "worst pain", "lightest pain", "average pain" and "pain now". While pain interference, respondents were asked to rate the extent to which pain bothered the individual in the last 1 week with seven questions. The first question asks about the extent to which pain interferes with the patient's general activities and the respondent will circle a number consisting of 0 (not disturbing) to 10 (very disturbing), the second question is about mood (mood), the third question is about the ability to walk, the fourth question is about the ability to walk. ordinary work (including work inside or outside the home), the fifth question is about relationships with other people, the sixth question is about sleep and the seventh question is about pleasure. The BPI has shown high reliability and validity across a wide range of pain conditions among patients from different cultures and individuals (Cleeland & Ryan, 1994; Daut, Cleeland, & Flanery, 1983; Osborne, Raichle, Jensen, Ehde, & Kraft, 2006). The reliability of BPI in this study was 0.873 by Cronbach's Alpha.

Data analysis

Demographic data was presented in the form of numbers and presentations. Data were analyzed using paired t-test and independent t-test, with the help of IBM software 20.

RESULT AND DISCUSSION

Tabel 1.
Demographic Characteristics of Respondents and Related Factors

Variable	Intervention group		Control group	
	F	%	F	%
Age (year)				
26-35	1	5	3	15
36-45	2	10	-	-
46-66	3	15	10	50
56-65	4	40	5	25
>65	6	30	2	10
Mean±SD	59.55±13.03		54.50±11.30	
Gender				
Female	14	70	11	55
Male	6	30	9	45
Ethnic				
Batak	17	85	19	95
Aceh	1	5	-	-
Java	1	5	1	5
Nias	1	5	-	-
Religion				
Protestan	12	60	18	90
Muslim	7	35	2	10
Chatolic	1	5	-	-
Educational				
Primary school	1	5	-	1
Junior high school	3	15	5	25
Senior high school	8	40	9	45
University	8	40	6	30

Employment				
Farmer	5	25	3	15
Civil officer	4	20	3	15
Private employee	4	20	4	20
Entrepreneur	2	10	3	15
Not working/ housewife	5	25	7	35
The long-suffering of LBF				
Chronic	20	100	20	100
Trigger				
Fall down	12	60	13	65
Lifting heavyweights	5	25	5	25
Sitting too long	2	10	2	10
HNP (Herniated nucleus pulposus)	1	5	-	-
Body mass index				
Normal	9	45	12	60
Overweight	5	25	4	20
Obesity	6	30	4	20
Mean±SD	26.10±3.553		24.80±3.397	

Table 2.
Frequency Distribution of Pain Intensity before and after Performed Positive Self-Talk Intervention in the Intervention and Group Control

Pain intensity	Intervention group				Control Group			
	Pre		Post		Pre		Post	
	F	%	F	%	F	%	F	%
Mild (1-3)	-	-	1	5	-	-	-	-
Moderate (4-6)	19	95	19	95	19	95	20	100
Severe (7-10)	1	20	-	-	1	5	-	-
Mean±SD	5.60±0.94		4.30±0.67		5.20±0.61		4.80±0.58	

The table above shows the distribution of the frequency of pain intensity before the action (pre) experienced by respondents in the majority intervention group (95%) experienced moderate pain with a mean pain intensity of 5.60 (SD=0.94) while the pain intensity after the procedure was carried out. The majority (95%) experienced moderate pain with a mean pain intensity of 4.30 (SD=0.67). In the

distribution of the frequency of pain intensity in the initial measurement (pre) the majority experienced moderate pain intensity (95%) with an average of 5.20 (SD = 0.61) while in the final measurement (post) the control group overall respondents (100%) experienced moderate pain intensity with a mean pain intensity of 4.80 (SD=0.58).

Tabel 3.
Distribution of The Frequency of Pain Interference before and after Positive Self-Talk in the Intervention and Control Group

Pain intensity	Intervention group				Control Group			
	Pre		Post		Pre		Post	
	F	%	F	%	F	%	F	%
Mild (1-3)	-	-	2	10	-	-	-	-
Moderate (4-6)	17	85	18	90	20	100	20	100
Severe (7-10)	3	15	-	-	-	-	-	-
Mean±SD	5.55±0.36		4.15±0.30		5.00±0.61		5.00±0.58	

In the distribution of the frequency of pain interference before the action (pre) experienced by respondents in the intervention group, the majority (85%) experienced moderate interference with a mean pain interference of 5.55 (SD=0.36) while the majority of pain interference after (post) treatment (90%) experienced moderate interference with a mean pain interference of 4.15 (SD=0.30). The distribution of

the frequency of pain interference in the initial measurement (pre) overall experienced moderate pain interference (100%) with a mean of 5.00 (SD=0.61) while in the final measurement (post) the control group overall respondents (100%) experienced moderate pain interference with a mean pain interference of 5.00 (SD=0.58).

Table 4.
Paired T-test in the Control Group before and after the Hospital Standard Procedural Intervention without Positive Self-talk Intervention (n=20)

Variable	Control group		
	Mean difference	t	p
Pain intensity	0.75	7.55	0.000
Pain interference	0.40	3.55	0.06

The results showed that there was a significant difference in pain intensity ($\alpha=0.000$; $p<0.05$) while there was no significant difference in pain interference ($\alpha=0.06$; $p>0.05$)

before being given the intervention and after being given the hospital standard procedural intervention in LBP patients

Table 5.
Paired T-test in the intervention group before and after the Positive Self-talk Intervention (n=20)

Variable	Intervention group		
	Mean difference	t	p
Pain intensity	1.30	10.17	0.000
Pain interference	1.40	12.45	0.000

The results showed that there was a significant difference in pain intensity ($\alpha=0.000$; $p<0.05$) as well as pain interference, namely there was a significant difference

($\alpha=0.000$; $p<0.05$) before being given the intervention and after being given the positive self-talk intervention in LBP patients.

Tabel 6.
Independent T-test in the Intervention and Control Group after Intervention

Variable	Mean difference $\pm$ SE	t	p
Pain intensity	0.55 $\pm$ 0.19	2.792	0.001
Pain interference	0.65 $\pm$ 0.20	3.193	0.004

The results showed that there was a significant difference in pain intensity between the intervention group after being given positive self-talk and the control group ($t=2.792$; $p<0.005$). The results of this study also found that there was a significant difference in pain interference between the intervention group after being given positive self-talk and the control group ($t=3.193$; $p<0.005$).

Pain intensity can be influenced by several things, such as age. This study found that in the intervention group less than half of the respondents (40%) were the late elderly with the average age of the respondents being 59.55 years ($SD=13.03$). Meanwhile, in the control group, the age characteristics showed that half of the respondents (50%) were early elderly with an average age of 54 years ($SD=11.3$). Older people can maintain a better psychological state in dealing with pain by suggesting themselves that they can maintain daily activities even though they are experiencing pain (Boggero, Geiger, Segerstrom, & Carlson, 2015). Based on gender, more than half (70.00%) of the respondents in the intervention group were women and more than half (55.00%) of the respondents in the control group were also women. Following sociocultural beliefs about femininity and masculinity are things that have a role in responding to pain (Bartley & Fillingim, 2013).

Based on the type of employment, more than a third (35.00%) in the occupational intervention group of the respondents were self-employed and did not work. This type of work can require long periods of sitting and repeated tense postures in the same position will shorten muscles and eventually cause pain (Antonio, Anggraeni, & Noor, 2014). Education level in the results of the study showed that the intervention group and control group had a high school education level. Education level can affect pain because when someone has a high education, they will have good knowledge. This can contribute to how the patient interprets the perceived pain interference. Research conducted by Przekop, Haviland, Oda, and Morton (2015) says that a low level of education has a significant relationship with pain interference where low education causes patients to limit themselves in reporting their pain.

The results showed that there was a significant difference between pain intensity ($\alpha=0.000$; $p<0.05$) before and after the positive self-talk was performed and in the control group

there was a difference in pain intensity ($\alpha=0.000$; $p<0.05$). These results indicate that positive self-talk can reduce pain in LBP patients. The results of other studies related to positive self-talk in reducing pain intensity are not yet available. However, based on several studies related to positive self-talk, it can reduce anxiety in the elderly (Manna, 2019), reduce anxiety during presentations in students (Anwar, 2020), reduce stress (Fatimah, 2019), and have an influence on performance (Tod, Hardy, & Oliver, 2011). The results showed that there was a difference in pain interference ($\alpha=0.000$; $p<0.005$) in the intervention group and there was no difference in pain interference in the control group ($\alpha=0.06$, $p>0.05$). The results of other studies related to positive self-talk in reducing pain interference are not available, but the results of this study found that there was a positive effect of self-talk on pain interference. Thus, it can be concluded that positive self-talk in addition to reducing anxiety, and stress, improve performance, and based on the results of this study can reduce interference in LBP patients.

The results showed that there was a significant difference in pain intensity between the intervention group after being given positive self-talk and the control group ($t=2$; $p<0.005$). These results indicate that there is a positive effect of self-talk on pain intensity. This decrease could be caused by feeling relaxed because relaxed conditions can control emotions and muscle tension that can exacerbate pain, and can increase activities that are not related to pain (Hamilton et al., 2011). The results of this study also found that there was a significant difference in pain interference between the intervention group after being given positive self-talk and the control group ($t=3.19$; $p<0.005$). The results of this study also found that there was a significant difference in pain interference between the intervention group after being given positive self-talk and the control group ($t=3.19$; $p<0.005$). These results indicate that positive self-talk affects reducing pain interference. The decrease in pain interference is also related to a decrease in pain intensity where one thing that can be done to help reduce pain intensity and pain inference is to do positive self-talk techniques.

LIMITATION OF THE STUDY

The limitations of researchers in this study are the difficulty of controlling respondents in conducting positive self-talk interventions due to the COVID-19 pandemic and directives from the government to carry out social distancing so that researchers cannot meet directly with respondents in terms of data collection.

CONCLUSIONS AND SUGGESTIONS

There is a significant difference between the intensity of pain before and after positive self-talk in the intervention group and the control group. Furthermore, there was a significant difference between pain interference before and after positive self-talk in the intervention group and the control group. Based on the results of the research found, it is hoped that positive self-talk interventions can be part of independent nursing interventions that are applied as one of the non-pharmacological interventions to help reduce pain intensity and pain interference in low back pain patients and conduct training or workshops to socialize positive self-talk actions.

ETHICAL CONSIDERATIONS

This study was approved by The Research Ethics Committee, Faculty of Nursing, Universitas Sumatera Utara No. 1978/I/SP/2020.

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Conflict of Interest Statement

The author declares that there is no potential conflict of interest concerning the authorship and publication of this article.

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