



# The Effectiveness of Physiotherapy's Patient Education on Independent Exercise Compliance for Low Back Pain Patient

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**Abstract.** Low back pain or commonly referred to as LBP is a pain problem that occurs in the lower back area. Pain that persists for three months or more will enter a chronic stage, and if left untreated it can have serious physical and social consequences. After suffering from low back pain, some patients experience various physical and mental disorders. Therefore, patients need to undergo a rehabilitation process to be able to restore body functions as much as possible and relieve pain, in this case, the patient's compliance in doing exercises to reduce the symptoms is very important so that therapeutic targets can be achieved. Increased patient understanding is expected to increase patient compliance with exercise and the effectiveness of therapy. Purpose: To determine the effectiveness of physiotherapy education in LBP patients. Method: Field Study, Proposal, Determination of research population/sample, sampling, and data recap after giving the questioner which would be distributed through Google doc and hardware and then analyzed by researchers based on the results. Outcomes: National journal indexed by Sinta 4, publication of Kompasiana, and HAKI. Result: Compliance value for exercise by paired T test showing 0,117 and the  $p < 0,05$ . Conclusion: There is An effective relationship between Physiotherapy Education and Physiotherapy Exercise Compliance in Low Back Pain patients.

**Keywords:** Low Back Pain (LBP) · Compliance and Exercise

## 1 Introduction

Cases of Low Back Pain (LBP) based on the prevalence of its occurrence worldwide average reach 15–45%. Data obtained from WHO (2013) shows that about 33% of the population in developing countries have complaints in the form of LBP. In the UK about 17.3 million people have experienced back pain and of that number, around 1.1 million people experience paralysis caused by back pain and 26% of adults in America reported experiencing LBP [1].

The prevalence of the incidence of LBP in Indonesia has not been determined, it is estimated at between 3–7%. Based on a preliminary study conducted at Grahasia Hospital, the prevalence rate of patients with LBP complaints reaches 60–70% every month. Low back pain is commonly known as LBP. Pain persisting for three months

or more will enter the chronic stage, and if allowed to continue without treatment can have serious physical and social consequences, therefore it is very important to prevent the disease. Pain can be felt in all parts of the body, commonly referred to as a clinical syndrome with major symptoms or pain and discomfort in the lower back area. More than 80% of LBP is felt by all humans in their lives, LBP does not recognize differences in gender, social status, or education level [2].

Some LBP patients experience various disorders such as tingling, decreased ability to move, especially mental changes to depression. Therefore, LBP patients need to undergo a rehabilitation process in order to be able to restore body functions as much as possible and relieve pain in the patient's lower back. Physiotherapy in this case plays a role in restoring and overcoming impairments and activity limitations so that patients can return to their activities [3].

From the point of view of physiotherapy, there will be many complications that arise if not handled properly (Rujito, 2007). The action of physiotherapy in LBP patients is to increase functional ability to reduce pain early by doing exercise after electrical therapy so that they can carry out daily activities to reduce morbidity (pain rate) and the potential for disability by taking secondary preventive measures and dealing with accompanying disorders [4].

Patient compliance in doing exercise to reduce complaints is very important for LBP patients so that therapeutic targets can be achieved. Increased patient understanding is expected to increase patient compliance with exercise and increase the effectiveness of therapy. Physiotherapy is one of the health workers who also have the responsibility to improve patient compliance with the exercise performed by the patient. Therefore, it is an obligation for physiotherapists to participate directly in educating patients in order to increase understanding in the community.

The compliance of LBP patients in undergoing physiotherapy at the Grhasia Sleman Hospital, it was known that in the obedient category as many as 13 people (65.5%) indicated that the patients had adhered to undergoing physiotherapy according to instructions from health workers [5]. In connection with the increasing number of patients with LBP who are already in physiotherapy and who have just started physiotherapy, it is necessary to review these patients whether they have taken a series of treatments including the education that has been suggested. Based on the above background, the researcher wanted to know the effectiveness of physiotherapy patient education on self-exercise compliance with low back pain patients.

## 1.1 Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as LBP and HAKI.

- a) Low Back Pain". Term Of Pain Back Pain
- b) HAKI (Hak Kekayaan Intelektual)
- c) COP (Center of Pressure)
- d) LOP (Larger of Pressure)

**Table 1.** One-Sample Kolmogorov-Smirnov Test

<b>Asymp. Sig. (2-tailed)</b>	<b>566</b>
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## 1.2 Figures and Tables

### 1.2.1 Normality Test

The normality test is a data test to see whether the residual value is normally distributed or not [6]. The possibility of bias will be small if the distribution of normality values is tested. In this study, to determine the normality of the data distribution using the Kolmogorov-Smirnov Test through the SPSS 21 for windows program (Table 1).

### 1.2.2 Reliability Test

The instrument used in this research is a questionnaire patient compliance. The patient compliance questionnaire was self-compiled based on the following factors:

Factors that influence non-compliance and consists of 10 questions that describe patient compliance in taking antidiabetic drugs. Before In this study, the questionnaire used was tested for validity and reliability. To test the validity, it can be used (Table 2).

Testing the validity and reliability of the questionnaire was carried out by distributing questionnaires to 20 respondents who met the inclusion criteria, then the answers to the completed questionnaire were tested using the help of SPSS. Test the validity of the questionnaire seen from the value of the corrected correlation coefficient ( $r$ ) for each question item which is declared valid with a correlation coefficient value ( $r$ ) of more than 0.2. The results obtained with Cronbach Alpha which is equal to 0.400 means that the questionnaire made is reliable (Tables 3, 4 and 5).

Effectiveness of Physiotherapy Patient Education on Independent Exercise Compliance with Low Back Pain (Table 6).

**Table 2.** Cronbach's Alpha Cronbach's Alpha Score Item Question

<b>Nilai Cronbach's Alpha</b>	<b>Item Soal</b>
<b>0,400</b>	<b>10</b>

**Table 3.** Respondent Characteristics Gender n Frequency

<b>Jenis Kelamin</b>	<b>n</b>	<b>Frekuensi</b>
<b>Perempuan</b>	12	60%
<b>Laki-laki</b>	8	40%
<b>Total</b>	20	100%

**Table 4.** Characteristics of Respondents Based on Age n Frequency

Usia	n	Frekuensi
<20	1	10%
>20	19	90%
<b>Total</b>	20	100%

**Table 5.** Characteristics of Respondents Based on Education n Frequency

Pendidikan	n	Frekuensi
SMP	1	10%
SMA	18	80%
Sarjana	1	10%
<b>Total</b>	20	100

**Table 6.** Physiotherapy Education Exercise Compliance P value correlation

Edukasi Fisioterapi	Kepatuhan Exercise	
	<i>P value</i>	<i>korelasi</i>
	0,117	-0,514

Based on the table, it can be seen that from the results of the paired T test, the calculated value of Exercise Compliance is 0.117 with a significant value of -0.015. This shows that the p value < 0.05, then  $H_a$  is accepted and  $H_o$  is rejected, meaning that there is a relationship between Physiotherapy Education and Physiotherapy Exercise Compliance in Low Back Pain patients.

### 1.3 Low Back Pain (LBP)

Low Back Pain Myogenic is low back pain that occurs due to excessive muscle tension causing pain where this initial pain is the cause of acute pain. The feelings that arise are tenderness in the lumbar area, spasm of the lower back muscles so that it can lead to an imbalance between the abdominal and paravertebral muscles which results in limited movement (Gerwin, 2010 in Permanasari, 2015).

#### a) *Classification/Type*

According to Balague et al., (2019) the classification of Low Back Pain based on the duration of symptoms is divided into three, namely:

- 1) Acute, if the pain is felt less than 6 weeks
- 2) Sub acute, if the pain is felt more or less 6–12 weeks
- 3) Chronic, if this pain is felt for more than 12 weeks

### b) *Pathophysiology*

Pain is caused by strain, atrophy, spasm and imbalance. All of these structures contain nociceptors that are sensitive to various stimuli (mechanical, thermal and chemical). When the receptor is stimulated by various regional stimuli, it will be answered by the release of various inflammatory mediators and substances that cause pain perception which aims to prevent movement that allows the healing process to take place. One of the mechanisms to prevent damage or more severe lesions is muscle spasm which limits movement.

This muscle spasm causes ischemia and at the same time causes the appearance of trigger points which is one of the pain conditions. This pain sensation will later develop to interfere with body functions and cause disability, affecting joint range of motion and flexibility [7].

Because of the spasm, there is an imbalance in the control of the body's balance. Balance ability is the performance of maintaining the body's center of gravity at the fulcrum or base of support. Patients with chronic LBP show a higher center of pressure (CoP) velocity and a larger CoP area, this may decrease the ability to control postural balance, during one-legged standing and greater difficulty adapting to changing body positions. So in addition to pain, patients with LBP also have poor balance which can increase the risk of falling which is quite high [8].

### c) *Etiology*

Myogenic low back pain is caused by mechanical activity where the first thing that is often felt is feeling pain. The pain is due to pressure on the muscles that occurs due to strenuous work activities such as lifting heavy objects, sitting or standing for a long time. Overuse of normal regional structures causes stress or strain on muscles, tendons and regions. From an anatomical and functional point of view, the spine is a structure that supports the body and head and is always involved in various postures and movements. This pain, which is often a chronic, dull pain, of varying intensity, is influenced by the lumbar spine and can radiate to the buttocks [9].

## **1.4 Exercise Physiotherapy**

Exercise is the ability of muscles and joints to move and stretch freely within the maximum range of joint motion. Good muscle and joint flexibility is where one or several components can move simultaneously to perform efficient movements, where this muscle and joint flexibility acts as a prevention of potential injuries and poor posture improvement. This decrease in flexibility is a result of the onset of diseases that occur in the musculoskeletal region due to physiological aging [10].

## **1.5 Physiotherapy Education**

Education is a form of action given by physiotherapists to patients with the aim of perfecting the treatment being undertaken. Understanding education according to experts is a learning process that aims to develop self-potential in patients to realize good and skilled handling. Education is not only intended for people who study formally but also

for non-formal education. This activity is carried out after the physiotherapy treatment is completed then the patient is allowed to go home with the provision of education.

Providing patient and family education is a business or activity carried out in order to provide information on patient health problems that are not known to the patient and his family. While this needs to be known to help and support medical management or other health workers. Education is not only in the form of information about what to do and what not to do, but some exercises that are safe for patients to do at home with doses set by the therapist to progress therapy. According to Rujito (2011), the purpose of this health education is to.

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