

## DIFFERENCES IN LOW BACK PAIN LEVEL IN PATIENTS USING THE LUMBAL CORSET AND NON-USING THE LUMBAL CORSET

Susanti Susanti<sup>1\*</sup> & Difran Nobel Bistara<sup>2</sup>

<sup>1</sup>Departement of Nursing, Stikes Adi Husada Surabaya, East Java, Indonesia

<sup>2</sup>Departement of Nursing, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia

### *Abstract*

Pain is a problem that is often encountered in everyday life and is a common reason people seek health care. More than half of all respondents have low back pain problems. This can cause pain and reduce the ability to move, which can prevent you from performing daily activities. Efforts that must be made by health workers are to provide education about the use of a lumbar corset to reduce pain in patients with low back pain. The purpose of this study was to determine the difference in pain levels in respondents with low back pain respondents who used a lumbar corset and did not use a lumbar corset at the Ketabang Health Center. The design of this study was non-experimental with the Mann Whitney comparison method. The sampling technique used total random sampling. The population in this study were respondents with low back pain who wore a lumbar corset and did not wear a lumbar corset, each of 20 respondents. Data collection using a questionnaire sheet Modified Oswestry Low back pain Disability Questionnaire. Statistical tests using SPSS showed that  $p = 0.028$  ( $\alpha = 0.05$ ). This shows that the use of a lumbar corset or assistive device in the treatment of low back pain is very effective in reducing pain in respondents with low back pain. Respondents are expected to be able to live a healthy lifestyle and wear a lumbar corset to reduce pain.

**Keywords:** *Low Back Pain; Pain; Lumbar Corset*

**Article info:** *Sending on August 02, 2021; Revision on October 30, 2021; Accepted on Nopember 05, 2021*

\*) *Corresponding author:*

*Email: susanti1303@gmail.com*

### **1. Introduction**

Pain is a problem that is often encountered in everyday life and is a common reason people seek health care. More than half of all respondents have low back pain problems (Wagiu, 2012). Low back pain (LBP) is a symptom and not a diagnosis. In some cases, the symptoms match the pathological diagnosis with high accuracy, but in most cases, the diagnosis is uncertain and lasts a long time (Wagiu, 2012).

Low back pain (LBP) is a health problem in the world. The incidence of LBP is very high and often recurs. LBP in Indonesia is a real health problem. LBP is the second disease in humans after influenza (Tunjung, 2009). LBP is a chronic disease that can cause anxiety if it is not treated immediately (Bistara, 2020).

Data for the number of LBP sufferers in Indonesia is not known for certain, but it is estimated that LBP sufferers in Indonesia vary between 7.6% to 37% of the total population in Indonesia. Approximately 80% of the population has experienced LBP once in their lifetime. At any time, more than 20% of the population suffers from low back pain (LBP) (Lailani, 2013).

Based on the initial survey at the Tembok Dukuh Health Center, Tembok Dukuh Village, Bubutan District, Surabaya, there was a phenomenon of respondents experiencing low back pain. In 2 respondents who were interviewed who were aged 65-73 years, 1 of them did not use a lumbar corset when he had low back pain, he said that when doing activities, it was very painful so he chose to wear patches and take pain medication instead of wearing a lumbar corset. And 1 other respondent wearing a lumbar corset said that the pain he suffered was not too painful when carrying out daily activities even though the activities carried out were not optimal and still taking pain relievers.

But the most frequently encountered of the factors that influence the occurrence of low back pain is the age factor. In line with increasing age, bone degeneration will occur and this situation begins to occur when a person is 30 years old. At the age of 30 years there is degeneration in the form of tissue damage, tissue replacement into scar tissue, fluid reduction. In general, musculoskeletal complaints begin to be felt at the working age of 25-65 years (Kantana, 2020). Other studies show the highest

incidence of LBP at the age of 35-55 years and increases with age (Pratiwi, Setyaningsih, Kurniawan, & Martini, 2009).

Efforts that must be made by health workers are to provide education about the use of a lumbar corset to reduce pain in patients with low back pain or prevent the recurrence of back pain in people who have a history of low back pain. The lumbar corset is a tool that is used on the body, especially in the waist area that functions as a support for the body to make it more stable and feel comfortable when work activities take place, the lumbar corset is recommended to people with complaints of LBP as stabilization in the lumbar region, to facilitate movements bending, and to reduce pain (Hutapea, 2014).

The lumbar corset is beneficial for people with low back pain, especially patients who are in acute condition and chronic low back pain recurrence. In this case, a corset should be worn during activities that are strenuous or can aggravate the condition. Likewise, there are patients who do not need surgery or it is not yet time for surgery, but must use a lumbar corset / corset to reduce spinal pain in the lower back and help maintain their posture (Wawan, 2016).

## 2. Method

The research method used is comparative analytic. This research was conducted on March 12, 2020 at the Tembok Dukuh Health Center, Surabaya, East Java with a population of 40 people and sampling using Total Sampling, each of which was 20 people. The research instrument is the Modified Oswestry Low back pain Disability Questionnaire using the Mann-Whitney test with the result  $p < 0.05$ .

Research ethics is a research procedure with professional, legal, and social responsibilities for

research subjects. In addition to ethical principles, the researcher also provided information to the respondents before the research was conducted. The researcher contacted the respondent to provide an explanation about the research. The explanations given include research objectives, research procedures, research benefits, risks and inconveniences that will be caused, maintaining data confidentiality, compensation in case of unexpected things, and the responsibility of the researcher. The researcher then asked for willingness to participate in the study. Researchers collected primary data and asked respondents to sign an informed consent. After all the data is confirmed to be complete, then the data will be processed and analyzed according to the research objectives.

## 3. Results

Table 1 shows that most of the respondents who did not wear a lumbar corset were >75 years old (65%), the same as respondents who wear a lumbar corset with age >75 years (55%). Table 2 found that most of the respondents did not work well who used lumbar corset (100%) or not wearing a lumbar corset (70%), all of which are housewives.

Table 3 shows that most of the respondents are female who wear a lumbar corset (60%) and do not wear a lumbar corset, all of them are gender female (100%). Table 4 shows that most of the respondents who wear the lumbar corset are mostly non-smokers (75%) and the respondents who do not wear the lumbar girdle are entirely non-smoker (100%). Table 5 found that most of the respondents who did not wear a lumbar corset were not living a healthy lifestyle (45%). While most of the respondents who wear a lumbar corset run a healthy lifestyle (75%).

**Table 1.** Age Distribution of Respondents with low back pain who wear a lumbar corset and do not wear a lumbar corset at Tembok Dukuh Health Center Surabaya (N=40 respondents)

Characteristics of	Respondents who do not wear a corset		Respondents who wear a corset		Total
	Frequency	Percentage	Frequency	Percentage	
<b>Age Respondents</b>					
Age 65-74 years	7	35%	9	45%	16
Age >75 years	13	65%	11	55%	24
Total	20	100%	20	100%	40

**Table 2.** Distribution of Work in Respondents with low back pain who wear a lumbar corset and do not wear a lumbar corset at Tembok Dukuh Health Center Surabaya (N=40 respondents)

Characteristics of	Respondents who do not wear a corset		Respondents who wear a corset		Total
	Frequency	Percentage	Frequency	Percentage of	
<b>Work</b>					
Not working	14	70 %	20	100%	34
Traders	4	20%	0	0%	4
Entrepreneurs	2	10%	0	0%	2
Others	0	0%	0	0%	0
Total	20	100%	20	100%	40

**Table 3.** Distribution of Gender in Respondents low back pain sufferers who wear a lumbar corset and do not wear a lumbar corset at the Tembok Dukuh Health Center Surabaya (N=40 respondents)

Characteristics of	Respondents who do not wear corsets		Respondents Who Wear Corsets		Total
	Frequency	Percentage	Frequency	Percentage	
Gender					
Male	8	40%	0	0%	8
Female	12	60%	20	100%	32
Total	20	100%	20	100%	40

**Table 4.** Distribution of Smoking Habits in Respondents with low back pain who wear a lumbar corset and do not wear a lumbar corset at Tembok Dukuh Health Center Surabaya (N=40 respondents)

Characteristics of	Respondents who do not wear a corset		Respondents who wear a corset		Total
	Frequency	Percentage	Frequency	Percentage	
Smoking					
Yes	5	25 %	0	0%	5
No	15	75%	20	100%	35
Total	20	100%	20	100%	40

**Table 5.** Distribution of Healthy Lifestyles in Respondents with low back pain who wear a lumbar corset and do not wear a lumbar corset at Tembok Dukuh Health Center Surabaya (N=40 respondents)

Characteristics of	respondents who do not wear a corset		Respondents who wear a corset		Total
	Frequency	Percentage	Frequency	Percentage	
of Healthy Lifestyle					
Yes	9	45%	15	75%	24
No	11	55%	5	25%	16
Total	20	100%	20	100%	40

**Table 6.** Frequency distribution of pain levels in respondents with low back pain who wear a lumbar girdle

Pain classification	score	Percentage
No pain	2	10%
Mild pain	15	75%
Moderate pain	3	15%
Severe pain	0	0%
Unbearable pain	0	0%
Total	20	100%

**Table 7.** Frequency distribution of pain levels in respondents with low back pain who do not wear a lumbar girdle

Pain classification	Frequency	Percentage
No pain	0	0%
Mild pain	2	10%
Moderate pain	6	30%
Severe pain	12	60%
Unbearable pain	0	0%
Total	20	100 %

**Table 8.** Comparison of Pain Levels in Respondents with Low back pain who use a lumbar corset and do not wear a lumbar corset at Tembok Dukuh Public Health Center Surabaya

Wear a lumbar corset			corset without a lumbar corset		
Pain classification	Frequency	Percentage	Pain classification	Frequency	Percentage
No pain	2	10%	No pain	0	0%
Pain Mild	15	75%	Mild pain	2	10%
Moderate pain	3	15%	Moderate pain	6	30%
Severe pain	0	0%	Severe pain	12	60%
Unbearable pain	0	0%	Unbearable pain	0	0%
Total	20	100%	Total	20	100%

Score Mann Whitney test ( $p$ ) = 0.027

Table 6 shows that most of the pain levels in respondents with low back pain who wear a lumbar girdle say the pain is mild (75%). Table 7 shows that most of the pain levels in respondents with low back

pain who do not wear a lumbar girdle (60%) say the pain is severe.

From the statistical test results with the Mann Whitney test, it was found that there was a significant difference between the level of pain in respondents

with low back pain who wore a lumbar girdle and did not wear a lumbar girdle with  $p = 0.027$  where  $\alpha = 0.05$ , then  $H_0$  is rejected and  $H_1$  is accepted, so that there is a difference between the level of pain in respondents with low back pain who wear a lumbar girdle and do not wear a lumbar girdle

#### 4. Discussion

##### 1. Pain levels in respondents with low back pain who wear a lumbar corset.

Pain levels in respondents with low back pain using a lumbar corset at the results showed that the level of pain in respondents with low back pain who wore a lumbar corset said that there was no pain as many as 2 respondents with a percentage (10%) obtained data that respondents who said there was no pain were respondents with low back pain who had been wearing a lumbar corset for approximately 1.5 years. At this stage, the patient said he was no longer working and living a healthy lifestyle, only doing light activities at home, as many as 3 people said that the pain was mild with a percentage (75%) obtained data that respondents who said mild pain were respondents with low back pain who wore a lumbar corset for approximately 3-6 months of use and some respondents who said mild pain also carried out a healthy lifestyle and reduced heavy lifting activities and 3 respondents NS For moderate pain with a percentage (15%) data obtained that respondents who said moderate pain were respondents with low back pain who wore a lumbar corset for 1 month of use and were still taking pain relievers.

As humans age, there is a degenerative aging process that will have an impact on changes in humans, not only physical changes, but also cognitive, emotional, social and sexual. One of them is changes in the musculoskeletal system in respondents, including in the connective tissue (collagen and elastin), cartilage, muscles and joints (Aulia, et al, 2012).

Low back pain is a clinical syndrome characterized by the main symptom of pain or other unpleasant feelings in the lower spine area (Suharto, 2005). Low back pain (LBP) is a manifestation of pathological conditions experienced by tissues or organs that are part of the back or near the back (Idyan, 2007). Symptoms of low back pain vary from pain to a stabbing or shooting sensation. This pain can make it difficult for the sufferer to move or stand up straight. Acute back pain comes on suddenly, usually after an injury from sports or lifting heavy weights. Pain that lasts more than three months is considered chronic (Mujianto, 2013).

Low back pain (LBP) is often encountered in daily practice, especially in industrialized countries. LBP is a chronic disease that can cause anxiety if it is not treated immediately (Bistara, 2020). It is estimated that 70-85% of the entire population will experience this episode during their lifetime. The annual

prevalence varies from 15-45%, with an average point prevalence of 30% (Sadeli and Tjahjono 2004).

Back pain (low back pain) if not treated not only causes prolonged pain and discomfort, frustration and distress but can also lead to lifelong disability (Mujianto, 2013). Decreased body function in respondents will result in problems with movement disorders and respondent functions. Respondents experienced decreased walking function, decreased balance function, decreased independence in activities of daily living and decreased functional ability (Mujianto, 2013).

The respondent's functional ability is the respondent's ability to move for activities including mobility and activities to meet the respondent's personal needs including self-care activities (Aulia, et al, 2012). The purpose of rehabilitation for respondents is to improve and improve the functional abilities of respondents so that respondents can be independent, remain active and productive and can enjoy their old age happily (Surini & Utomo, 2004).

Nurses as role models in the community play a major role in pain management through non-pharmacological approaches. Interventions that are included in the non-pharmacological approach, for example by giving appropriate (specific) exercises or exercises, can help reduce weakness, relieve stress, increase muscle strength, and prevent deformities (Surini & Utomo, 2004).

Stretching exercises or gymnastics will have a better impact than bed rest. Patients with low back pain (LBP) may rest for one to two days when the pain occurs but after that time the pain will usually get worse because the body is not active. Without exercise and movement, the back muscles and spinal structures become poorly conditioned and less able to support. This can cause re-injury and spasm which will cause pain (Sadeli & Tjahjono, 2004).

The use of a lumbar corset or assistive device in the treatment of low back pain is very effective. Factors that influence 1) Age, the older, the more muscle strength and endurance begin to decrease, so the risk of muscle complaints for low back pain increases. The subjects used in this study were subjects who were included in the respondent's age category, this was done so that the results of the study were more objective because they used the same age category 2) Occupation, including one of the things that can affect low back pain experienced, most sufferers low back pain is a housewife who used to work and now only does housework 3) gender, physical strength of women's bodies on average 2/3 of men. 4) Habits of smokers are more at risk of developing LBP compared to non-smokers. It is estimated that this is caused by a decrease in the supply of oxygen bound to hemoglobin and reduced blood oxygen due to nicotine to narrowing of the arteries. Smoking habits can cause back pain because smokers have a tendency to experience disturbances in their blood circulation, including to the spine (Rohkamm, 2004).

Smoking habits will be able to reduce lung capacity due to the content of carbon monoxide so that the ability to consume oxygen decreases and as a result the level of freshness decreases. If the person concerned performs a task that requires exertion, he will easily get tired because the oxygen content in the blood is low, carbohydrate burning is inhibited, lactic acid buildup occurs, and eventually muscle pain occurs (Network, 2002). The habit of drinking alcohol, coffee and cigarettes is associated with osteoporotic events while lack of movement or exercise causes poor tissue flexibility (Prasetyo, 2020).

Supported by the results of research (Ichwandari, 2016) the Wilcoxon test statistic results obtained results on post VAS test and Vas pretest  $p$  value = 0.000 ( $<0.05$ ) it can be concluded that there is a significant difference or effect between before and after the use of the lumbar corset.

This is also proven in previous studies by research by Alfanzubaidi et al. (2012) and Rendra Gita Aulia (2012) which concluded that there was an effect of using elastic lumbar corsets and corsets with bamboo support as a basis for reducing pain degrees according to the results of research conducted by researchers.

Supported by the results of the study (Pratiwi, 2009) The distribution of the subjects of this study, it is known that the largest number of samples of LBP patients came from the age range of 50-59 years (35.4%). Increasing a person's age will be accompanied by a decrease in physical capacity and functional ability. One of the symptoms of the aging process is bone degeneration and muscle aging, which can increase the risk of low back pain.

The results of Rohkamm research (2004) showed that the majority of LBP sufferers came from housewives and retired as many as 35 people (48.2%). According to Sulisty (2013), the risk factor for increasing the incidence of LBP is a static work position such as sitting too much or standing too long. Improper sitting position also increases the risk of LBP, and increases if there is a lot of vibration when sitting for a long time, such as in driving a vehicle.

The results of the research that have been carried out by researchers can be interpreted that respondents are people aged  $> 65$  years where that age is the age group that reaches the preinimum stage at this stage will experience various decreases in body resistance / health and various psychological pressures. This will bring about changes in his life. The results of the study that found differences in pain levels in respondents with low back pain who wore a lumbar girdle mostly said the pain was mild, this happened because of the influence of age, previous work, gender, smoking habits and healthy lifestyle. Judging from the age of the respondents, most of them are respondents aged  $>65$  years. Most respondents with low back pain who wear a lumbar corset are housewives who do not work. This can affect the factor of reducing pain, due to activities carried out in

daily life including light activities and not lifting heavy objects. Likewise, a healthy lifestyle and smoking habits also affect the incidence of pain reduction in patients with low back pain.

2. Pain levels in respondents with low back pain who don't wear a lumbar corset.

Pain levels in respondents with low back pain who do not wear a lumbar corset at The results showed that the level of pain in respondents with low back pain who wore a lumbar corset was 12. Respondents said the pain was severe with a percentage (60%), saying moderate pain. as many as 6 respondents with a percentage (30%) said mild pain as many as 2 respondents with a percentage (10%). The data found that respondents who said severe pain were respondents who had long been diagnosed with low back pain but did not take pain relievers and only used patches without any further treatment. Almost the same as Respondents with low back pain who said moderate pain said that he used to be a jamu carrying worker and the other was a tailor, they said that when lifting heavy objects and doing strenuous activities the pain they felt would increase, in contrast to Respondents sufferers of low back pain who said the pain was mild said that he took painkillers when the pain was increasing, other things he did were reduce strenuous activities, sunbathe in the morning, and take part in gymnastics to relax muscles.

Specific structures in the nervous system are involved in converting stimuli into pain sensations. The system involved in the transmission and perception of pain is known as the nociceptive system. The sensitivity of the components of the nociceptive system can be influenced by a number of factors and differs between individuals. Not everyone who is exposed to the same stimulus experiences the same intensity of pain. The sensation of extreme pain to one person may be almost imperceptible to another. Pain receptors (nociceptors) are free nerve endings in the skin that respond only to strong, potentially damaging stimuli, where these stimuli can be chemical, mechanical or thermal. Pain receptors are complex multidirectional pathways. These nerve fibers branch very close to their origin in the skin and send their branches to local blood vessels. Mast cells, hair follicles and sweat glands. Stimulation of these fibers results in the release of histamine from mast cells and causes vasodilation. Cutaneous fibers lie more centrally than more distant branches and communicate with the paravertebral sympathetic chain of the nervous system and with the larger internal organs. A number of substances that can increase the transmission or perception of pain include histamine, bradykinin, acetylcholine and prostaglandins, where these substances can increase the pain-causing effect of bradykinin. Other substances in the body that function as inhibitors of pain transmission are endorphins and enkephalins which are found in strong

concentrations in the central nervous system (Wawan, 2016).

The dorsal horn of the spinal cord is the site of sensory processing, where in order for pain to be consciously absorbed, neurons in the ascending system must be activated. Activation occurs as a result of input from pain receptors located in the skin and internal organs. Pain processes occur because of the interaction between the painful stimulus and the sensation of pain. Pathophysiology In the sensation of low back pain in this case the vertebral column can be considered as an elastic rod composed of many vertebral units and intervertebral disc units which are bound to each other by a facet joint complex, various ligaments and spinal muscles (Wawan, 2016).

The unique back construction allows flexibility while providing maximum protection for the spinal cord. The curvature of the spine will absorb vertical shocks when running or jumping. The torso helps stabilize the spine. Abdominal and thoracic muscles are very important when lifting weights. If never used will weaken this support structure. Obesity, posture problems, structural problems and over stretching of the spinal supports can result in back pain. Intervertebral discs will experience changes in nature as you get older. In young people, the disc is composed mainly of fibrocartilage with a gelatinous matrix. In respondents, it will become dense and irregular fibrocartilage. Intervertebral disc degeneration is a common cause of back pain. The lower lumbar discs, L4-L5 and L5-S6, suffer the most stress and the most degenerative changes. Disc protrusion or joint damage can result in pressure on the nerve roots as they exit the spinal canal, resulting in pain that radiates along the nerve (Wawan, 2016).

The results of the study showed that the subject data were 41 people with 15 men (36.6%) and 26 women (63.4%). The most common age of LBP sufferers is 40-60 years, 23 people (56.1%) then age > 60 years 15 people (36.6%) and <40 years old 3 people (7.3%). The most LBP sufferers work as housewives, namely 15 people (36.6%), followed by entrepreneurs by 14 people (34.1%) and the least number is 1 student (2.4%) (Aulia, et al, 2012).

Several conditions that may be triggering factors include work that requires exertion of strength or excessive repetition of movements that can cause muscle and nerve injury, awkward positions or positions that are not supportive so that will cause excessive stretching, static position or the position of the worker must be still or immobile for long periods of time, movements such as bending and twisting, and inadequate recovery time due to overtime and lack of rest (Aulia, et al, 2012).

3. Differences in pain levels in respondents with low back pain who wear a lumbar corset and don't wear a lumbar corset.

The results of statistical tests using the Mann Whitney test showed that most of the pain levels felt by

respondents with low back pain who wore a corset were 15 people (75%) with mild pain. Most of the pain levels felt by respondents with low back pain who did not wear a corset each 12 people (60%) felt severe pain. Then it was found that there was a significant difference between the level of pain in respondents with low back pain who wore a lumbar corset and did not wear a lumbar corset with  $p = 0.027$  where  $\alpha = 0.05$ , then  $H_0$  was rejected and  $H_1$  was accepted, so that there was a difference between pain levels in respondents with low back pain who wear a lumbar corset and do not wear a lumbar corset at the Ketabang Public Health Center, Surabaya City.

The results of the study of reducing pain levels can be handled by using a lumbar corset in respondents with low back pain, and the lumbar corset can also be used to reduce the occurrence of increased pain when doing work or doing various other activities. The lumbar corset really helps reduce other risk factors that are often experienced by respondents because the lumbar corset helps support the upper back to the lower back.

Basically the onset of back pain occurs because there is an emphasis on the peripheral nervous system of the waist area (pinched nerves). Pinching of this nerve can occur due to disorders of the muscles in the surrounding tissue, disorders of the nerves themselves, spinal disorders or abnormalities in other places. (Pearce, 1999). The incidence of low back pain is closely related to the way of working, work attitude and work position, design of work tools, work facilities, layout, work facilities and so on. By paying attention to and managing the causative and triggering factors, the incidence of low back pain can be eliminated or its presence can be postponed. Several factors related to lifting loads that affect the incidence of work back pain are the weight of the load, the size of the load, the shape of the load, the type of load, the height of the load, and so on. (Depnaker, 1995).

Etiology Low back pain is caused by various abnormalities or pathological changes that affect various organs. Some experts make different classifications on the basis of the disorder or the tissue that has the disorder. Pain can be caused by anything that presses or strains the nerves in the back of the body and in the muscles. According to Audre L (2003), broadly speaking, the factors that cause low back pain can be divided into: 1) Low back pain due to the wrong attitude. Improper body position at work because the chair used is not ergonomic (Prasetyo, 2020). 2) Back pain in spinal disorders. Can be caused, among others: injury, infection, tumor, and osteoporosis. 3) Back pain in diseases of internal organs What is often found is back pain due to prostate disease, kidney stones, stomach disease, gynecology. Back pain in rheumatic diseases include: Osteoarthritis, rheumatoid and arthritis. 4) Due to Rheumatic Disease. 5) Due to Muscle Tension (Psychic). This condition is known as psychogenetic low back pain. Such as mental stress or excessive

thoughts can cause the spine to tighten and stiffen as well as pain.

Management of low back pain Because the causes of low back pain are very diverse, the management also varies. However, there are 2 stages, namely conservative and operative. The two stages of therapy have the same goal, namely rehabilitation (Harsono, 2009). 1) Conservative therapy or non-surgical therapy, including bed rest or rest, drugs (medicamentosa), local injection, physical therapy or physiotherapy, wearing a corset or brace. 2) Operative therapy or surgical therapy Performed if conservative measures do not give real results in cases of fractures that directly result in neurologic deficits.

Management of low back pain generally varies according to study, type of work, and local environment. Usually under normal conditions the pain will go away on its own after a few days without requiring treatment, but not always (Lailani, 2013).

One of the tools for treating low back pain is using an orthosis. Orthosis / Orthose / ortesa is any device that is added to the body or a supporting device for the body or limbs withered, paralyzed or stabilizes or immobilizes body parts, prevents disability, protects from injury, or helps the function of the limbs. One of these orthoses is the Elastic Lumbar Corset. Elastic Lumbar Corset is a personal protective equipment due to work that prevents injury to muscle tissue when doing activities.

The Elastic Lumbar Corset itself is made of elastic and porous material so it is not hot when worn, and is supported on the back in the form of aluminum plates on both sides of the vertebra with a length of 30-40 cm. The size of the lumbar corset varies, there is a size S with an abdominal circumference of 75-90 cm, a size M with an abdominal circumference of 90-205 cm, a size L with an abdominal circumference of 205-115 cm (Ichwandari, 2007).

Elastic Design Lumbar Corset The lumbar corset is made of elastic material with a width of 25 cm at the posterior part, and the length is adjusted to the size of the abdominal circumference. The posterior part is reinforced with 4 metal bars which serve as support for the posterior lumbar region.

These results are supported by the results of research significant effect between before and after the use of the Lumbar Corset (Lailani, 2013).

This is also proven in previous studies by research by Alfian Zubaidi et al. (2012) and Rendra Gita Aulia (2012), concluding that there is an effect of the use of elastic lumbar corsets and corsets with bamboo support as a basis for reducing pain degrees according to the results of research conducted by researchers.

## 5. Conclusion

This study shows that the use of a lumbar corset or assistive device in the treatment of low back pain is very effective in reducing pain in respondents with low back pain.

## 6. Suggestion

Respondents are expected to have a healthy lifestyle such as regular exercise, eating nutritious food, consuming milk with high calcium and reducing smoking because it can reduce pain in people with low back pain.

## 7. References

- Afroh F, Judha M, Sudarti. 2012. Teori Pengukuran Nyeri & Nyeri Persalinan, Nuha Medika: Yogyakarta
- Alfan Zubaidi, 2012; Keefektifan Elastic Lumbar Corset Terhadap Progresivitas Derajat Nyeri Pada Pasien Low Back Pain, Kementerian Kesehatan Politektik Kesehatan Surakarta Jurusan Ortotik Prostetik, Surakarta.
- Andarmoyo, S. 2013. Konsep dan Proses Keperawatan Nyeri, Ar- Ruzz, Yogyakarta
- Aulia MH, Rendra Gita, 2012; Model Korset Dengan Bahan Dasar Support Bambu Untuk Mengurangi Nyeri LBP Pada Pengemudi Bus di Kota Surakarta, Universitas Muhammadiyah Surakarta, Surakarta
- Bistara, DN., S Susanti. 2020. Acceptance and Commitment Therapy (ACT) on Increasing The Compliance of Management DM Type 2
- Depnaker, 1993; Data Antropometri Statis (A) tenaga kerja Indonesia pria dan wanita dari beberapa perusahaan di Indonesia tahun 1992-1993, Depnaker, Jakarta.
- Harsono, 2009. Kapita Selekta Neurologi. Cetakan ketujuh. Yogyakarta: Gadjah Mada University Press.
- Hutapea, RP (2014). Penggunaan Back Support Untuk Pencegahan Low back pain Pada Pekerja.
- Ichwandari. Ida Laksmi, 2016; Perbedaan Pengaruh Antara Pemberian Lumbar Corset dan Back Exercise Dengan Back Exercise Terhadap Penurunan Nyeri Punggung Bawah di Poliklinik Fisioterapi Rumah Sakit Umum Daerah Kabupaten Sragen, Universitas Muhammadiyah Surakarta, Surakarta
- Idyan, Z. 2007. Hubungan Lama Duduk Saat Perkuliahan Dengan Keluhan Low Back Pain. Thesis. Fakultas Kedokteran Universitas Airlangga. Surabaya.
- Ineko, RM. 2012. Diagnosis And Treatment of Chronic Insomnia: A Review. PP:56;332-343. Psychiatr Serve
- Jellema, Van Tulder MW, dkk, 2001, Lumbar Support for Prevention and Treatment of Low Back Pain, Spine.
- Katana, T. 2020. Faktor-Faktor yang Mempengaruhi Keluhan Low back pain Pada Kegiatan Mengemudi Tim Ekspedisi PT Enseval Putera Metragading Jakarta Tahun 2020. Skripsi. FKIK UIN Jakarta.
- Lailani, MT 2013. Hubungan Antara Peningkatan Indeks Massa Tubuh dengan Kejadian Nyeri Punggung Bawah pada Pasien Rawat Jalan di

- Poliklinik Saraf RSUD Dokter Soedarso Pontianak. *Jurnal Mahasiswa PSPD FK Universitas Tanjungpura*, 1(1): 1-15.
- Mujianto. 2013. Cara Cepat Mengatasi 20 Besar Kasus Muskuloskeletal Dalam Praktik Klinik Fisioterapi. Jakarta: Trans Info Media.
- Prasetyo, SN 2020. Konsep dan Proses Keperawatan Nyeri. Yogyakarta: Graha Ilmu.
- Pratiwi, M., Setyaningsih, Y., Kurniawan, B., Martini., 2009, Beberapa Faktor Yang Berpengaruh Terhadap Keluhan Nyeri Punggung Bawah Pada Penjual Jamu Gendong, dalam:  
<http://ejournal.undip.ac.id/index.php/jpki/article/view/2429>
- Rohkamm R, Color Atlas of Neurology 2004. Thieme.
- Sadeli HA dan Tjahjono B. 2004. Nyeri Punggung Bawah. dalam: Nyeri Neuropatik, Patofisiologi dan Penatalaksanaan. Editor: Meliala L, Suryamiharja A, Purba JS, Sadeli HA. Perdossi, 2001:145-167
- Sri Surini Pudjiastuti, Budi Utomo, 2004; Fisioterapi Pada Responden; Jakarta, Buku Kedokteran EGC, hal 60-61, 76
- Suharto. Penatalaksanaan Fisioterapi Pada Nyeri Punggung Bawah Aspesifik Akibat Joint Block Thoracal Dan Lumbal. Thesis. Akademi Fisioterapi Departemen Kesehatan RI. Makassar. 2005
- Sulistyo, 2013 Konsep dan Proses Keperawatan Nyeri, Ar- Ruzz, Yogyakarta
- Tamher, S. & Noorkasiani. 2009. Kesehatan Usia Lanjut dengan Pendekatan Asuhan Keperawatan Jakarta: Salemba Medika
- Tunjung, R. 2009. Diagnosis dan Penatalaksanaan Nyeri Punggung Bawah di Puskesmas. Diakses: 18 November 2011.
- Wagiu, SA 2012. Pendekatan Diagnostik Low back pain (LBP). Jakarta: FK Universitas Indonesia
- Wawan, D. (2016, Desember 12). dokter wawan. Retrieved Desember 2018, from Tips Menggunakan Penyangga Tulang Punggung Bawah (Korset Lumbal): <http://dokterwawan.com/2016/12/12/tips-menggunakan-penyangga-tulang-punggung-bawah-korset-lumbal/>