

Profile of Low Back Pain Patients at the Neurology Polyclinic

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ABSTRACT

Low back pain is a condition that disturbs a person's comfort due to pain that arises between the fifth lumbar and first sacral vertebrae (L5 – S1). LBP complaints are the main cause of loss of productive years due to disability due to illness and injury in DKI Jakarta in 2017. Risk factors for LBP are age, gender, obesity, work factors (lifting heavy loads and non-ergonomic posture), exercise habits, and past medical history. This paper discusses the profile of LBP patients at the Neurology Polyclinic of UKI General Hospital from January 2019 – December 2020. This study used a descriptive method with a cross-sectional retrospective study design. Data were obtained by collecting and analyzing the medical records of patients at the Neurology Polyclinic of UKI General Hospital who came for treatment with a major complaint of LBP. The number of research samples was determined using the total sampling method. Out of 101 LBP patients who came for treatment at the UKI General Hospital neurology polyclinic in January 2019 - December 2002, only 83 patients had complete medical records, so the sample in this study was 83. Most analyses of results based on age, sex, occupation, BMI, type of LBP, duration of LBP, past medical history, most common diagnosis, and treatment obtained by patients, namely: age group >65 years of 27 people (32.5%), sex 55 women (66.3%), 36 housewives (43.4%), BMI category 25 – 29.9 or obesity I 29 people (34.9%), radicular pain type 49 people (59.0%), LBP 45 people (54.2%) had an acute illness, 51 people (61.4%) had no previous history of the disease, 30 people (36.1%) Lumbar HNP, and conservative management in the form of medication and physiotherapy 81 people (97.6%).

Keywords: low back pain, radicular pain, Lumbar HNP

INTRODUCTION

Low back pain is a condition that disturbs a person's comfort due to pain that arises between the fifth lumbar vertebra and the first sacral (L5 – S1) [1]. LBP is a symptom of a disease rather than a disease's diagnosis. It is a sign that the body tissue in the lower back has suffered damage. Individuals of all ages very commonly feel symptoms of LBP [2]. PERDOSSI states that the pain that is felt can be local (pain only arising in the lower back area), radicular (pain radiating to the extremities), or both, namely local and radicular [3].

Based on the underlying causes of LBP complaints, LBP can be classified into specific and non-specific. LBP complaints with identifiable causes, such as cancer or malignancy, vertebral fractures, infections, axial spondyloarthritis, and cauda equina syndrome, are referred to as specific LBP. A research study of 1172 patients with acute episodes of LBP (less than two weeks) in Australian primary health care showed that only about 0.9% of patients could identify the cause. The most common cause was fracture (eight of eleven cases), followed by spondyloarthritis (two of eleven cases).

Meanwhile, complaints of LBP for which the source of nociception cannot be identified are classified as non-specific LBP[2] Approximately 85% of LBP patients are included in non-specific LBP [4].

LBP is not a health problem that can cause death, but LBP is a health problem that is most often experienced by everyone worldwide. In the US, one of the most common causes that make someone come to see a doctor is a complaint of LBP [5]. The occurrence of LBP can have a huge impact on individuals who experience it, especially in the economic field. It is due to the limited movement when individuals do work that not a few individuals who experience LBP complaints ask permission not to come to work. If this situation lasts for a long period, it will not only affect the individual's economy but also impact the economy of the family, community, and government [6]. In the last few decades, limited activities due to LBP have occurred quite a lot in low- and middle-income countries, such as Asia, Africa, and the Middle East[2] The Ministry of Health of the Republic of Indonesia stated that the number of LBP incidents in Indonesia in 2018 was 18 % [7]. Based on Indonesia's 2017 national and sub-national disease burden analysis data, LBP complaints were the main cause of loss of productive years due to disability due to illness and injury in DKI Jakarta in 2017 [8].

Various risk factors, including age, gender, obesity or overweight, occupational factors, exercise habits, and the patient's medical history, can trigger the occurrence of LBP. The age group that most often experiences LBP is the age group of 31-50 years. Women than men more often feel LBP complaints. In 2018, 49 out of 76 LBP patients (64.5%) at Bandung City Hospital were women, and the rest were men[9] Individuals who are obese have a five times greater risk of experiencing LBP complaints compared to someone with normal weight[1] A study conducted at the Bandung City Hospital showed that most

LBP patients had a body mass index ≥ 25.0 or were overweight, which was 56.6% [9].

Occupational factors that can cause LBP complaints are lifting heavy loads, such as those carried out by porters and construction workers, and non-ergonomic postures. Heavy loads lifted incorrectly and not following individual capacity can result in muscle fatigue which will cause LBP complaints. In addition, unergonomic body postures such as sitting that is too bent for a long time (> 30 minutes) can trigger LBP complaints [10]. This wrong sitting position is often done by administrative staff and also students. A study of students at the Faculty of Medicine, Udayana University, showed that as many as 57 out of 65 people (61.96%) with LBP complaints often took the wrong sitting position [11].

Based on the background explanation above, a research problem is formulated: What is the profile of low back pain patients at the Neurology Polyclinic of UKI General Hospital from January 2019 – December 2020? The research objective was to determine the profile of patients with low back pain at the Neurology Polyclinic, UKI General Hospital.

LITERATURE REVIEW

The vertebral column forms about 40% of human height[12] The vertebral column is the main skeletal bone component in the dorsal region. The vertebral column consists of 33 vertebrae arranged vertically. Based on their location, the vertebrae are divided into five major groups: seven cervical vertebrae, 12 thoracic vertebrae, five lumbar vertebrae, five sacral vertebrae, which diffuse into the os sacrum, and four coccygeal vertebrae, which also merge into a single bone called the os coccyx[13] The vertebral column has a characteristic curvature ventrally called lordosis and dorsally called kyphosis. Lordosis is found in the cervical and lumbar regions, while kyphosis is found in the thoracic and sacral regions [12].

The structure of vertebrae generally consists of a) Corpus vertebrae in the anterior and

vertebral arches in the posterior; b) The vertebral processes consist of 2 transverse processes, two superior and inferior articular processes, and one spinous process; c) The vertebral foramen is a hole whose anterior part is formed by the posterior side of the vertebral bodies, and vertebral arches form the lateral and posterior parts d) The vertebral incisors are indentations on the superior and inferior surfaces of the pedicles. The superior vertebral incisor with the inferior vertebral incisor of other adjacent vertebrae will form the intervertebral foramen [13].

Adjacent vertebral bodies are connected by several ligaments and a fibrocartilage tissue called the intervertebral disc. The intervertebral disc consists of two main components: the annulus fibrosus and the nucleus pulposus. The annulus fibrosus is located peripherally around the nucleus pulposus; its structure is rich in type I collagen bundles. The nucleus pulposus has a gel consistency and fills the central part of the intervertebral disc [13].

Each group of vertebrae has its characteristics. A distinctive feature of the cervical vertebrae is the presence of a round opening in the transverse process, known as the foramen processus transversi. The C1, C2, and C7 vertebrae are respectively referred to as the atlas, axis, and vertebrae prominens. In the thoracic vertebrae, there are fovea costalis superior and inferior on each side of the vertebral bodies for jointing with the heads of the ribs. Lumbar vertebrae can be distinguished easily from other vertebrae. The characteristic feature of the lumbar vertebrae is the large, cylindrical body of the vertebrae. No vertebral arches and canals were found in the coccyx [13].

Symphysis between corpus vertebrae and zygapophysialis joints are the two main joints that connect vertebrae. Layers of hyaline cartilage on the proximal and distal edges of the vertebral bodies, together with the intervertebral discs, form symphyses to connect adjacent vertebral bodies. The zygapophysial joint is a synovial joint that connects the superior articular process with

the inferior articular process of adjacent vertebrae [13]. The anterior and posterior longitudinal ligaments, ligamentum flava, supraspinous ligament, nuchal ligament, and interspinous ligament strengthen joints between vertebrae.

The muscles in the dorsal region are grouped into extrinsic and intrinsic muscles. The extrinsic muscles are located in the superficial and intermediate layers and are innervated by the anterior rami spinal nerves, while the intrinsic muscles are located in the deep layers and are innervated by the posterior rami spinal nerves. The superficial layer of extrinsic muscles consists of m. trapezius, m. latissimus dorsi, m. levator scapulae, m. rhomboideus minor, and m. rhomboid major. The extrinsic muscle layer intermediate consists of m. serratus posterior superior and m. serratus posterior inferior. Intrinsic muscles consist of m. spinalis, m. longissimus, and m. iliocostalis, all three are referred to as m. erector spinae [13]. The spinal cord is located within the vertebral canal. In adults, the spinal cord terminates at disc level between the L1 and L2 or L2 and L3 vertebrae. The distal end of the spinal cord is called the conus medullaris. The phylum terminale is a fine filament of connective tissue that continues from the conus medullaris inferiorly. During its journey, the spinal cord experiences enlargement in the cervical and lumbosacral regions, known as cervical intumescentia and lumbosacral intumescentia.

Structurally, the spinal cord is composed of gray matter and white matter. The gray matter lies inward and is surrounded by white matter. In the center of the gray matter, there is the canalis centralis. The anterior median fissure, posterior median sulcus, and posterolateral sulcus are on the outer surface of the spinal cord. The layers covering the spinal cord from inside to outside are the pia mater, arachnoid mater, and dura mater. Between the arachnoid layer and the pia mater is the subarachnoid cavity. The subarachnoid cavity contains cerebrospinal fluid or cerebrospinal fluid

(CSF). The anterior and posterior roots connect the spinal cord to each spinal nerve. Next, each spinal nerve divides into an anterior and posterior ramus after passing through the intervertebral foramen. The posterior rami innervate the intrinsic muscles of the dorsi and skin of the dorsal region, while the anterior rami innervate most of the body's skeletal muscles. The anterior rami form all the major somatic plexuses (cervical, brachial, lumbar, and sacral). The spinal cord does not fill the vertebral canal, so the spinal nerve roots become longer to exit at the appropriate intervertebral foramen. The collection of anterior and posterior roots of the lumbar, sacral, and coccygeal nerves below the conus medullaris is called the cauda equina. The spinal nerves consist of 8 pairs of cervical nerves, 12 pairs of thoracic nerves, five pairs of lumbar nerves, five pairs of sacral nerves, and one pair of coccygeal nerves. Each spinal nerve will emerge from the vertebral canal under the vertebrae that correspond to its number, except for the cervical nerves. The C1 nerves leave the body between the skull and the C1 vertebrae, the C2-C7 nerves leave the body above the corresponding vertebrae, and the C8 nerves leave the body below the CVII vertebrae [13].

The lumbosacral plexus supplies the lower extremities. The lumbosacral plexus consists of the lumbar plexus (Th12 – L4) and the sacral plexus (L4 – S5, Co1), formed from the anterior rami of the spinal nerves of the lumbar, sacral, and coccygeal segments. While branches of the sacral plexus provide body parts on the lateral side of the leg and the dorsum pedis, all of the lumbar plexus' nerves supply body parts in the inguinal and ventral areas of the thigh. Lumbar plexus branches include N. iliohypogastricus, N. ilioinguinal, N. genitofemoral, N. cutaneus femoris lateralis, N. femoral, and N. obturatorius. Branches of the sacral plexus include N. gluteus superior, N. gluteus inferior, N. ischiadicus, N. cutaneus femoris posterior, N. pudendus. The area of skin innervated by a

single segment of the spinal cord is called a dermatome. The lower extremity dermatome area is clinically useful in diagnosing common disc prolapse [12]. Pain is a defense mechanism of the body that aims to warn the conscious mind that tissue damage is being or will occur [14]. Low back pain is pain, stiffness, or muscle tension that arises between the lower edge of the ribs and the inferior gluteal folds, with or without radiating to the lower extremities [15]. Based on the source, pain is grouped into axial, lumbosacral, radicular, and referred pain. Lumbosacral axial pain is a pain in the area of the lumbar vertebrae (L1 – L5) and the sacral vertebrae (S1 – sacrococcygeal junction). Radicular pain radiates down the lower extremities along the dermatomal area. Referred pain radiates to a part of the body that is far from the source of the pain and does not follow the dermatome [5].

Types of LBP: 1) Mechanical pain due to injury or trauma to the spine, intervertebral discs, or surrounding tissues [16], 2) Psychogenic pain, generally felt by patients with depression or anxiety disorders and is chronic in nature, 3) Pain neurogenic, due to irritation of the spinal nerves [17]. Based on the intensity, LBP can be quantified and divided into three groups, namely mild pain (scale 1 – 3), moderate (scale 4 – 6), and severe pain (scale 7 – 9) [18]. LBP complaints can be classified into acute, subacute, and chronic based on the duration. Every year, the prevalence of LBP globally ranges from 15-45% [10]. It is estimated that 70-85% of the world's population has suffered from LBP at least once during their lifetime, with the most common occurrence occurring in the adult population in developing countries [9; 18]. Up to 1.1 million of the 17.3 million people in the UK who have experienced low back pain are paralyzed due to their back pain. Approximately 26% of the adult population in America reported having LBP for at least one day in three months [10].

No data provides an epidemiological picture of the incidence of LBP in Indonesia. Based

on the number of LBP patients who come for treatment at several hospitals in Indonesia, the incidence varies from 3-17% [10]. The incidence of LBP is estimated to occur in 40% of the population on the island of Java who is over 65 years old, with a male and female prevalence of 18.2% and 13.6%, respectively [18]. In a multicenter study conducted by PERDOSSI in May 2002 in 14 Indonesian teaching hospitals, 4,456 patients complained of pain, and 819 had complaints of LBP (18.37%) [17]. Based on the cause, LBP can be divided into specific and non-specific LBP.

LBP complaints begin to be common in the second decade of life, with the highest incidence occurring in the fifth decade [18]. In the second decade of life, a person has started to enter the productive age so that more and more activities are carried out. The increased activity can cause pain in the relatively frequently used limbs, one of which is the lower back [1]. In addition, as you get older, the strength and endurance of the muscles, as well as the density and elasticity of the bones, will decrease so that it is easy to be at risk of experiencing musculoskeletal complaints, which will cause pain [1; 17; 18]. In old age, there will also be a process of disc degeneration which will cause complaints of pain [9].

Women than men more often feel LBP complaints. It is based on the difference in pain sensitivity between women and men. The hormone estrogen produced by women influences this difference. When there is damage in the body, the hormone estrogen can increase the response to inflammation so that it will cause an increase in the pain that arises. In addition, the hormone estrogen can also stimulate spinal nerve fibers to release NMDA, increasing pain sensitivity [9]. Decreased levels of the hormone estrogen that occur in women who are experiencing menopause can cause the bone density to decrease, making it possible for LBP complaints to occur. Certain conditions experienced by women, such as pregnancy, are also one of the reasons why

LBP complaints are more common in women [17].

BMI is a standard measure used to assess body weight. A person is said to be obese if he has a $BMI \geq 25$. Someone who is obese is at high risk of experiencing LBP. It is due to the accumulation of fat in the abdominal region, which will put additional pressure on the spinal structures, making it easier for damage to occur, which will cause LBP complaints. In addition, someone who is obese will experience an increase in adipocyte cells in their body. Adipocytes will produce adipokines (leptin, resistin, TNF α , and IL-6), stimulating chondrocytes to release compounds such as IL-8, MMP, and NO. These compounds can cause sensitization of free nerve endings, matrix degradation, and chondrocyte apoptosis [9]. Occupational factors that can affect the emergence of LBP complaints are workload, work position or attitude, duration of work per day, and length of service [17]. Hip labor and construction workers are examples of work that often involve lifting heavy loads [9]. Heavyweights that are lifted repeatedly in an incorrect manner have the risk of causing musculoskeletal disorders such as LBP. An awkward work position is one of the triggering factors for LBP complaints. An example of an awkward position is the wrong sitting posture, namely sitting with your back bent forward, not in an upright position, and your head down [18]. If one does this every day and repeatedly, there will be muscle tension in the lumbar region and pain in the lower back [10]. In addition, other working positions, such as bending, bending the body, or standing for too long, can also cause LBP complaints [17].

One day's recommended duration or working time is 6-8 hours [17]. In workers whose work duration exceeds the average, continuous muscle contractions will trigger muscle shortening and muscle ischemia, which will cause pain [9; 10]. A person's working period has the potential to cause NPB complaints. A study states that workers with >20 years of service are at

high risk of experiencing LBP complaints. It is because the longer a person's working period, the more likely they are to be exposed to risk factors, so the possibility of LBP complaints also becomes greater [1].

A lack of exercise habits causes about 80% of LBP cases. Lack of exercise habits causes the level of flexibility or muscle tone to decrease and weaken [6]. It usually occurs in the deep layers of muscles that support the dorsal side of the body. The superficial layer muscles will become more active than the deep muscles to compensate for this situation so that their function in maintaining body posture is maintained. However, this situation can cause muscle spasms which will cause a painful sensation [18].

The emergence of LBP complaints is closely related to a history of spinal trauma experienced by someone. Someone who has experienced spinal trauma will experience vulnerability in the spine, so they are at risk for experiencing recurrent pain. This situation is further exacerbated if other risk factors that trigger LBP are not controlled [19]. A history of other diseases that can increase the risk of causing LBP complaints is cancer. Breast, lung, kidney, and prostate cancer have the potential to metastasize to the spine, which can cause clinical manifestations in the form of LBP complaints [5].

The nicotine substance contained in cigarettes can cause blood flow to the tissues and intervertebral discs to decrease, as a result of which the transport of materials needed for cell metabolism becomes obstructed, so muscle fatigue will quickly occur, which causes pain [1]. In addition, studies on animals and humans show that smoking can induce a degenerative process in spinal structures such as the intervertebral discs, which can eventually result in pressure on the nerve structures and cause complaints of neuropathic LBP [20].

The intervertebral discs have a very important role in maintaining the spinal function, namely as shock absorbers,

strengthening spinal movements, and spreading compressive forces axially and torsion. The intervertebral disc is a tissue that does not have blood vessels, so its need for oxygen and nutrients depends on the process of diffusion of the cartilage blood vessels located at the proximal and distal edges of the vertebral bodies. As a result, the center of the disc typically has lower oxygen and glucose levels than the edges [21].

When there is a decrease in cartilage permeability, the diffusion process will be disrupted, resulting in a decrease in the supply of oxygen and nutrients to the disc. This situation makes it difficult for the disc to maintain matrix and cell regeneration. As a result, the disc will experience cell degeneration and apoptosis. In addition, proteoglycans and aggressive molecules will experience degradation with age. Degradation of proteoglycans and aggressive molecules results in the loss of glycosaminoglycan molecules and a decrease in osmotic pressure on the disc so that the disc structure will turn solid and rigid. It makes spinal flexibility decrease. Continuing pressure on the dense and rigid disc structure will cause the disc to shorten, eventually resulting in the nucleus's protrusion into the thin or torn portion of the annulus and the relatively weak portion of the posterior longitudinal ligament [21]. The protrusion of this nucleus can compress the spinal nerve fibers and cause complaints of pain radiating along the dermatome area corresponding to the affected spinal cord segment [22]. This situation can cause stress for the cartilage and annulus, which is associated with the emergence of complaints of discogenic pain [21].

Anatomically, the annulus fibrosus surrounds and separates the nucleus pulposus from the peripheral blood circulation. It makes the nucleus pulposus not recognized as part of the body by the body's immune system. When the annulus fibrosus ruptures, the nucleus pulposus is exposed to the body's environment. Exposure to the nucleus pulposus will

trigger an autoimmune reaction that produces several proinflammatory substances, such as IL-1, IL-6, and TNF. IL-1 will stimulate the synthesis of PGE2 and 5-HT and increase pain sensitivity, while IL-6 will stimulate local inflammatory responses and release other inflammatory mediators [23]. The inflammatory mediators produced can irritate the spinal nerves [22]. In the process of recovery of the annulus fibrosus, granulation tissue and nerve fiber endings can grow into the annulus fibrosus and even into the nucleus pulposus[23] The degradation of the aggressive molecule in disc degeneration, the aggressive molecule functions as an inhibitor of nerve fiber growth and supports the growth of nerve fibers into the intervertebral disc. This situation contributes to the emergence of chronic pain. The incidence of disc herniation is closely related to the changes in disc degeneration. However, healthy intervertebral discs can also experience disc herniation if the spine receives excessive weight. In addition, shortening of the intervertebral discs can result in excessive stress on the facet joints. It poses a risk of causing osteoarthritis in the facet joints [21]. Abnormalities or damage to other anatomical structures of the back, such as the sacroiliac joints, muscles, and ligaments, can cause pain [22].

RESEARCH METHOD

This type of research is a descriptive study with a cross-sectional retrospective research design. Data were collected by analyzing the medical records of LBP patients who came to the Neurology Polyclinic of UKI General Hospital from January 2019 - December 2020. This research was conducted in the medical records section of UKI General Hospital and was carried out in October - November 2021. The target population in this study was all medical records of LBP patients at the Neurology Polyclinic at UKI Hospital from January 2019 – December 2020. This study used the total sampling method so that the number of study samples was equal to the number of

medical record records of LBP patients at the Neurology Polyclinic at UKI RSU in the period January 2019 – December 2020 who met the research inclusion criteria. The research instrument used in this study was medical records of LBP patients at the Neurology Polyclinic at UKI General Hospital from January 2019 – December 2020. After completing data collection, the data was entered and processed using the SPSS (Statistical Package for The Social Science) application and then analyzed using the univariate analysis method.

RESULT AND DISCUSSION

In this study, 523 patients were found to have LBP patients at UKI General Hospital from January 2019 - December 2020. This number combines patients from various polyclinics in UKI General Hospital. Of the 523 LBP patients who came for treatment at UKI General Hospital, 101 had LBP at the neurology polyclinic. Eighty-three patients met the inclusion criteria, and the remaining 18 did not meet the study criteria. The study's results describing LBP patients at the neurology polyclinic at UKI General Hospital are presented in tabular form.

Table 1. Distribution of Patients by Age

Age	Frequency (n)	Percentage (%)
26 – 35 years	3	3.6
36 – 45 years	5	6.0
46 – 55 years	24	28.9
56 – 65 years	24	28.9
>65 years	27	32.5
Total	83	100.0

The results showed that most LBP patients were found in the age group >65 years of 27 people (32.5%), and the least was found in the age group of 26 – 35 years of 3 people (3.6%). The age group 46-55 years and 56-65 years had the same frequency, namely 24 people (28.9%).

Table 2. Distribution of Patients by Gender

Gender	Frequency (n)	Percentage (%)
Male	28	33.7
Female	55	66.3
Total	83	100.0

The results showed that 55 patients (66.3%) had more or more frequent cases of LBP than the male sex, 28 people (33.7%).

Table 3. Distribution of Patients by Occupation

Occupation	Frequency (n)	Percentage (%)
Housewife	36	43.4
Retired	16	19.3
Private	13	15.7
Businessman	6	7.2
Civil Servant	5	6.0
Teacher	1	1.2
Laundry Worker	1	1.2
Online taxis	1	1.2
Jobless	4	4.8
Total	83	100.0

This study showed that the most common work performed by LBP patients was by housewives, as many as 36 of the 83 patients (43.4%) studied.

Table 4. Distribution of Patients Based on BMI

BMI	Frequency (n)	Percentage (%)
<18,5	1	1.2
18,5 – 22,9	24	28.9
23 – 24,9	17	20.5
25 – 29,9	29	34.9
>29,9	12	14.5
Total	83	100.0

The results showed that most LBP patients were in the BMI category 25 – 29.9 (obese I) with 29 people (34.9%), followed by the BMI category 18.5 – 22.9 (normal) with 24 people (28.9%), BMI category 23 – 24.9 (pre-obese) as many as 17 people (20.5%), and only one person (1.2%) had BMI <18.5 (underweight).

Table 5. Distribution of Patients Based on LBP Type

LBP type	Frequency (n)	Percentage (%)
Local	31	37.3
Radicular	49	59.0
Referred	3	3.6
Total	83	100.0

The results showed that the most common type of pain felt by patients was radicular pain in 49 people (59.0%), followed by local pain in 31 people (37.3%) and referred pain in 3 people (3.6%).

Table 6. Distribution of Patients Based on LBP Duration

LBP duration	Frequency (n)	Percentage (%)
Acute	45	54.2
Subacute	14	16.9
Chronicle	24	28.9
Total	83	100.0

The results of the study based on the length of time patients experienced LBP complaints found that most patients experienced complaints of acute LBP (pain felt <6 weeks) as many as 45 out of 83 patients (54.2%) followed by chronic LBP (pain felt >12 weeks) as many as 24 out of 83 patients (28.9%).

Table 7. Distribution of Patients Based on Past Medical History

Past Medical History	Frequency (n)	Percentage (%)
History of falls (trauma)	20	24.1
Scoliosis	2	2.4
Prostate hyperplasia	2	2.4
Ca cervix	1	1.2
History of Sectio Caesarea	1	1.2
Diseases of the kidneys and urinary tract	2	2.4
Pulmonary tuberculosis	1	1.2
Prostate cancer + history of falls	1	1.2
Kidney and urinary tract disease + history of falls	2	2.4
Nothing	51	61.4
Total	83	100.0

The results of the study in terms of the patient's past medical history showed that 51 out of 83 LBP patients (61.4%) had no previous history of the disease, 20 out of 83 LBP patients (24.1%) had a history of previous falls or trauma, 1 out of 83 LBP patients (1.2%) had prostate cancer and also had a history of previous falls, and 2 out of 83 LBP patients (2.4%) had experienced kidney and urinary tract disease and had a history of previous falls.

Table 8. Distribution of Patients Based on Diagnosis

Diagnosis	Frequency (n)	Percentage (%)
Low Back Pain	18	21.7
Lumbar HNP	30	36.1
Spondyloarthrosis	9	10.8
Spondylosis	3	3.6
Spondylolisthesis	3	3.6
Osteopetrosis	1	1.2
Osteoarthritis	2	2.4
Fracture	4	4.8
Myalgia	1	1.2
Scoliosis	4	4.8
Sciatica	5	6.0
Kidney & urinary tract disease	2	2.4
Abses Iliopsoas	1	1.2
Total	83	100.0

The results showed that the most diagnosed patients with LBP in the neurology polyclinic were Lumbar HNP in 30 of 83 patients (36.1%), then 18 of 83 patients (21.7%) were only diagnosed with low back pain.

Table 9. Distribution of Patients Based on Treatment

Governance	Frequency (n)	Percentage (%)
Conservative	81	97.6
Operation	2	2.4
Total	83	100.0

The results of the study found that 81 out of 83 LBP patients (97.6%) received conservative management (medical treatment and physiotherapy), and 2 out of 83 patients (2.4%) received therapy in the form of surgery or surgery.

The subjects in this study were LBP patients at the neurology polyclinic from January 2019 - December 2020, with a total sample of 83 patients. The patient profiles observed in this study were age, gender, occupation, BMI, type of LBP, duration of LBP, past medical history, diagnosis, and management of the patients.

Of the 83 study samples, the age profile of LBP patients was found most in the age group >65 years, namely 27 people (32.5%). The same results were obtained by a study conducted at the medical rehabilitation polyclinic at the Tidore City Hospital, where most patients with LBP were in the age group 61-70 years in 14 of the 34 patients studied (41.2%) [17]. Research conducted at Bandung City Hospital also obtained the same results: most LBP patients were found in the age group ≥ 50 years [9]. In this study, the frequency of LBP events increased with age. These results follow the theory, which states that the incidence of LBP increases with age [17]. It is because as a person ages, the body's functions decrease more and more, causing a person to be more susceptible to diseases such as osteoporosis, malignancy, or infections which can cause clinical manifestations in the form of LBP complaints [25]. In addition, intervertebral disc degeneration in old age makes a person susceptible to experiencing LBP [9].

Based on gender, it was found that there were more or more frequent cases of LBP patients in the female sex, as many as 55 people (66.3%) than in the male sex, as many as 28 people (33.7%). These results align with a study conducted at the neurosurgery clinic at the Bandung City General Hospital, which found that 49 women (64.5%) had LBP more often than 27 men (35.5%) [9]. The same results were obtained by a study conducted at the neurosurgery clinic of dr. Zainoel Abidin that LBP patients are more common in women than men [26]. However, research conducted at the medical rehabilitation polyclinic at the Tidore City Hospital gave different results, in that the frequency of LBP patients was the same between the male and female sexes [17].

Hormonal changes that occur in women make women more at risk of experiencing LBP. These hormonal changes occur when women experience menstruation, pregnancy, and the menopause process. The menstrual cycle that occurs every month in women makes women more sensitive to being able to feel pain [4]. When a woman has entered the menopause phase, the hormone estrogen in her body will decrease. This situation will impact bone density, which in turn will reduce the spine's flexibility and eventually cause pain. Besides, women have lower muscle abilities than men, so women are more at risk of experiencing musculoskeletal disorders [17]. In addition to hormonal changes that occur in women, another theory states that there are an excessive number of u-opioid receptors in some parts of the male brain, causing the transmission of painful stimuli to be inhibited and making men less sensitive to feeling pain [9].

This study found that the most common type of work performed by LBP patients was by housewives, namely 36 of the 83 patients (43.4%) studied. The second largest number of jobs performed by LBP patients were retirees, 16 of 83 patients (19.3%), followed by private workers, 13 of 83 patients (15.7%), self-employed workers, 6

of 83 patients (7.2%), civil servant workers, 5 out of 83 patients (6.0%), as teachers, laundry workers, and online taxi drivers respectively, 1 out of 83 patients (1.2%), and 4 out of 83 patients (4.8%) do not work. These results align with research conducted at the neurosurgery clinic at the Bandung City General Hospital, which found that the type of work most commonly performed by LBP patients was housewives, with a percentage of 43.3% [9]. The same results were obtained by a study conducted at the neurosurgery clinic of dr. Zainoel Abidin that most of the work done by LBP patients was done as housewives, as many as 33 of the 103 LBP patients (32%) studied [32]. However, different results were obtained by research conducted at the medical rehabilitation polyclinic of the Tidore City Regional Hospital that the most work done by LBP patients was done as civil servants, with a percentage of 52.9% or 18 of the 34 patients studied [17].

According to research conducted at Al-Ihsan Hospital in Bandung with a sample of 40 LBP patients who work as housewives, a housewife is often in a standing position while doing her job, such as washing, sweeping, lifting weights, mopping, cooking, and drying. In that study, it was stated that being in a long-standing position can put excessive pressure on the intervertebral discs, so it is at risk of causing LBP complaints [4]. Apart from the standing position, other movements often performed by housewives, such as bending, kneeling, and squatting, can also increase the risk of causing LBP complaints [32].

Based on BMI, 12 of the 83 patients (14.5%) studied were in the BMI category >29.9 or obesity II, 29 of the 83 patients (34.9%) studied were in the BMI category 25 – 29.9 or obesity I, 17 of the 83 patients (20.5%) studied were in the BMI category 23 – 24.9 or pre-obese, 24 of the 83 patients (28.9%) were in the BMI category 18.5 – 22.9 or normal, and only 1 of 83 patients (1.2%) were in the category of BMI <18.5 or underweight. The highest number of LBP patients were in the BMI category 25 – 29.9

or obesity I. The results of this study were in line with a study conducted at the Bandung City Hospital's neurosurgery polyclinic that most LBP patients had a BMI ≥ 25 or were overweight, with a percentage of 56.6% [9]. According to Reny et al.'s research, individuals with greater BMI, tend to experience low back pain with more severe intensity than individuals with normal BMI. Four possibilities explain the mechanism of LBP complaints in obese individuals: the occurrence of trauma to the spinal structures due to excessive load on the lumbar vertebrae as a result of chronic systemic inflammation, metabolic syndrome, and degeneration of the intervertebral discs and vertebral endplates [20].

Based on the type, radicular pain was the most common type of pain felt by LBP patients, as many as 49 people (59.0%). The second most common type of pain was local pain in 31 people (37.3%), and the least was referred pain in 3 people (3.6%). In this study, 45 of the 83 patients (54.2%) studied had acute LBP, 14 of 83 patients (16.9%) had subacute LBP, and 24 of 83 patients (28.9%) had chronic LBP. Individuals who experience acute LBP complaints will tend to go to primary health care for treatment. A systematic review study showed that around 33% of patients with LBP who went to seek help from primary health care would recover in less than three months, and about 65% of patients' complaints of pain persisted for up to 12 months. Complaints of acute LBP have a fairly good prognosis [27]. Research conducted in KwaZulu-Natal, South Africa, showed that chronic LBP causes a lack of individual knowledge, obesity, smoking habits, drinking habits, sedentary lifestyle, and non-ergonomic work attitudes [24].

Based on past medical history, it was found that as many as 20 of the 83 LBP patients (24.1%) studied had experienced a previous fall or trauma. A total of three other LBP patients were found to have a history of previous falls accompanied by a history of other diseases, one of whom (1.2%) had a history of prostate cancer, and the other two

had a history of kidney and urinary tract disease. So, in total, 23 LBP patients had experienced a previous fall or trauma. Other medical histories of LBP patients include scoliosis, prostatic hyperplasia, cervical cancer, a history of caesarean section, kidney and urinary tract disease, and pulmonary tuberculosis.

According to the findings of a study conducted on medical school students at Udayana University, up to 8 out of every 14 spinal injury victims (72.73%) experienced low back pain [11]. Trauma or injury can occur when the back is exposed to external forces such as being bumped, run over, and dropped. This situation can cause damage to the muscles, fascia, or even vertebral fractures [20]. Trauma can be divided into major trauma and minor trauma. Examples of major trauma are rupture of the insertion of the erector chord muscle and rupture of the interspinous ligament, while examples of minor trauma are sacroiliac strains and lumbosacral strains [11]. The trauma that occurs can cause manifestations in the form of pain in the lower back.

In this study, the most diagnosed patients with LBP were lumbar HNP in 30 of 83 patients (36.1%), followed by spondyloarthrosis in 9 of 83 patients (10.8%), sciatica in 5 of 83 patients (6.0%), fracture and scoliosis respectively in 4 of 83 patients (4.8%), and spondylosis and spondylolisthesis each in 3 of 83 patients (3.6%). A total of 18 of the 83 patients (21.7%) studied were only diagnosed with Low Back Pain. It is because some patients recommended doing an AP-Lateral lumbosacral X-ray examination do not do this, so a definite diagnosis cannot be made. This study's results align with research conducted at the medical rehabilitation polyclinic at the Tidore City Hospital, where the most diagnosed patients with LBP were lumbar HNP in 19 of the 34 patients (55.9%) studied [17]. Anatomically, herniation of the nucleus pulposus is more common in the lumbar region because the lumbar vertebrae and intervertebral discs in the lumbar region have a larger size and a

denser structure to withstand the increasing pressure forces due to body weight [12].

Based on the management of LBP patients, 81 out of 83 LBP patients (97.6%) received conservative therapy in the form of education, medical therapy, and consultations to medical rehabilitation for physiotherapy, and as many as 2 out of 83 LBP patients (2.4%) received therapy in the form of surgery or surgery. In this study, it was found that three patients were recommended for surgery, but the patients refused, so the patients were only given conservative therapy. Based on the observations, complaints of pain improved in most patients who received conservative therapy, so patients rarely received therapy in the form of surgery.

One of the conservative therapies received by LBP patients is medical rehabilitation using the TENS method. Based on research conducted by Ninik et al., TENS therapy significantly reduced the pain scale in LBP patients. In that study, it was found that 39 of 71 patients experienced severe pain, 30 of 71 patients experienced moderate pain, and 2 of 71 patients experienced mild pain before TENS therapy. This number changed after the patients were treated five times TENS, where the number of patients who felt severe pain became one person, patients who felt moderate pain became 16 people, and patients who felt mild pain became 54 people [28].

CONCLUSION

Based on the results of the study regarding the profile of low back pain patients at the UKI RSU Neurology Polyclinic in the January 2019 – December 2020 period, it can be concluded as follows: a) Based on age, that is, the most age group >65 years, 27 people (32.5%) and the most slightly in the age group 26-35 years as many as three people (3.6%). Based on gender, the most were women, as many as 55 people (66.3%); b) Based on occupation, the most frequently performed work was as a housewife, as many as 36 people (43.4%); c) Based on BMI, the highest BMI category

was the BMI category of 25 – 29.9 with 29 people (34.9%); d) Based on the type of pain, radicular pain was the most common type of pain felt by patients, as many as 49 people (59.0%). Based on the duration of pain, 45 people (54.2%) experienced the most complaints of acute LBP; e) Based on past medical history, that is, most LBP patients did not have a history of previous illness, as many as 51 people (61.4%); f) Based on the diagnosis, the most diagnosed patients with LBP were lumbar HNP as many as 30 people (36.1%); and g) Based on the treatment received by the patient, most LBP patients received conservative treatment in the form of medical treatment and physiotherapy, namely 81 people (97.6%).

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REFERENCES

1. Wahab A. Faktor-Faktor Yang Berhubungan Dengan Keluhan Nyeri Punggung Bawah (Low Back Pain) Pada Nelayan Di Desa Batu Karas Kecamatan Cijulang Pangandaran. *Biomedika*. 2019 Mar 11;11(1):35-40.
2. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, Genevay S, Hoy D, Karppinen J, Pransky G, Sieper J, Smeets RJ. What low back pain is and why we need to pay attention. *The Lancet*. 2018 Jun 9;391(10137):2356-67.
3. Marvellini RY. Radiographic images of lumbosacral photos in patients of low back pain in RSUD pasar minggu period of july 2016-july 2017. *International Journal of Medical and Health Research*. 2021;7(8):68-73.
4. Nugraha FR, Respati T, Rachmi A. Faktor Risiko nyeri PUNGGUNG BAWAH pada ibu rumah tangga. *Jurnal Integrasi Kesehatan dan Sains (JKS)*. 2020.
5. Urits I, Burshtein A, Sharma M, Testa L, Gold PA, Orhurhu V, Viswanath O, Jones MR, Sidransky MA, Spektor B, Kaye AD. Low back pain, a comprehensive review: pathophysiology, diagnosis, and treatment. *Current pain and headache reports*. 2019 Mar;23(3):1-0.
6. Arwinno LD. Keluhan nyeri punggung bawah pada penjahit garmen. *HIGEIA (Journal of Public Health Research and Development)*. 2018 Oct 26;2(3):406-16.
7. Zulfikri A. *Analisis Lama Kerja, Postur Kerja Dan Keluhan Low Back Pain Pada Petani Padi Kecamatan Sei Bingai Kabupaten Langkat* (Doctoral dissertation, Universitas Islam Negeri Sumatera Utara Medan).
8. Mahendradhata Y, Trisnantoro L, Listyadewi S, Soewondo P, Marthias T, Harimurti P, Prawira J. The Republic of Indonesia health system review.
9. Islami NA, Akbar IB, Hakim FA. Gambaran Faktor Risiko Pasien Nyeri Punggung Bawah di RSUD Kota Bandung Periode Januari-Desember 2018. *Prosiding Pendidikan Dokter*. 2020 Jan 27:465-8.
10. Harahap PS, Marisdayana R, Al Hudri M. Faktor-faktor yang berhubungan dengan keluhan Low Back Pain (LBP) pada pekerja pengrajin batik tulis di Kecamatan Pelayangan Kota Jambi Tahun 2018. *Riset Informasi Kesehatan*. 2019 Jan 31;7(2):147-54.
11. Sanjaya F, Yuliana Y, Muliani M. Proposi dan karakteristik mahasiswa penderita nyeri punggung di Fakultas Kedokteran Universitas Udayana Tahun 2018. *Bali Anatomy Journal*. 2019 Dec 1;2(2):30-7.
12. Paulsen F, Waschke J. *Sobotta Clinical Atlas of Human Anatomy, one volume, English*. Elsevier Health Sciences; 2019 Mar 6.
13. Drake RL, Vogl AW, Mithcel AW. *Gray Dasar-dasar anatomi*. Elsevier (Singapore); 2014.
14. Sherwood L. *Introduction to human physiology*. Brooks/Cole, Cengage Learning.; 2013.
15. Knezevic NN, Candido KD, Vlaeyen JW, Zundert JV, Cohen SP. *Low back pain: Epidemiology, mechanisms, and treatment*. In *Lancet-Seminar Series* 2021.
16. Will JS, Bury DC, Miller JA. Mechanical low back pain. *American family physician*. 2018 Oct 1;98(7):421-8.
17. Goin ZZ, Pontoh LM, Umasangadji H. Karakteristik Pasien Nyeri Punggung Bawah Di Poliklinik Rehabilitasi Medik

- Rumah Sakit Daerah Kota Tidore Kepulauan Periode Januari-Juni 2019. Kieraha Medical Journal. 2020 Feb 28;1(1).
18. Mustagfirin MI, Nataliswati T, Hidayah N. STUDI LITERATUR REVIEW: LATIHAN STRETCHING TERHADAP PENURUNAN TINGKAT NYERI PUNGGUNG BAWAH PADA LANSIA. Hospital Majapahit (JURNAL ILMIAH KESEHATAN POLITEKNIK KESEHATAN MAJAPAHIT MOJOKERTO). 2020 Nov 30;12(2):143-55.
 19. Best D, Van Wersch A, Carthy N. 'It's like drowning and you can't get out'; the influence of intimate partner violence on women with chronic low back pain. European Journal of Counselling Psychology. 2020 Jul 14.
 20. Indrayani R, Wati DM, Agustini AT. Keluhan Nyeri Punggung Bawah di Kalangan Pekerja Kerajinan Tasbih. Jurnal Ilmu Kesehatan Masyarakat. 2019 Sep 26:110-8.
 21. Knezevic NN, Mandalia S, Raasch J, Knezevic I, Candido KD. Treatment of chronic low back pain—new approaches on the horizon. Journal of pain research. 2017;10:1111.
 22. Knezevic NN, Candido KD, Vlaeyen JW, Van Zundert J, Cohen SP. Low back pain. Lancet [Internet]. 2021; 398 (10294): 78–92.
 23. Zhao L, Manchikanti L, Kaye AD, Abd-Elseyed A. Treatment of discogenic low back pain: current treatment strategies and future options- a literature review. Current pain and headache reports. 2019 Nov;23(11):1-9.
 24. Kahere M, Ginindza T. The prevalence and risk factors of chronic low back pain among adults in KwaZulu-Natal, South Africa: an observational cross-sectional hospital-based study. BMC musculoskeletal disorders. 2021 Dec;22(1):1-0.
 25. Guesteva VC, Anggraini RA, Maudi LP, Rahmadiani PY, Azzahra N. Faktor-Faktor Penyebab Kejadian Low Back Pain pada Pekerja Kantoran: Systematic Review. Jurnal Ilmiah Kesehatan Masyarakat: Media Komunikasi Komunitas Kesehatan Masyarakat. 2021 Sep 7;13(3):151-9.
 26. Bahri TS. KUALITAS HIDUP PASIEN LOW BACK PAIN DI RSUD dr. ZAINOEL ABIDIN. Jurnal Ilmiah Mahasiswa Fakultas Keperawatan. 2019 Jul 26;4(1).
 27. Delitto A, Patterson CG, Stevans JM, Freburger JK, Khoja SS, Schneider MJ, Greco CM, Freel JA, Sowa GA, Wasan AD, Brennan GP. Stratified care to prevent chronic low back pain in high-risk patients: The TARGET trial. A multi-site pragmatic cluster randomized trial. EclinicalMedicine. 2021 Apr 1;34:100795.
 28. Sallatalohy NM, Paliyama MJ, Noya FC. Efektifitas Penggunaan Terapi Transcutaneous Electrical Nerve Stimulation (Tens) Pada Pasien Nyeri Punggung Bawah.

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