
RESEARCH ARTICLE

Characteristics of Low Back Pain (LBP) in The Lumbosacral Examination in Radiological Installations: A Case of Tidore Island Hospital and Jailolo Hospital, Indonesia

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ABSTRACT

The International Classification of Disease (ICD) shows that Low Back Pain (LBP) is a condition of pain and discomfort in a person below the corner of the last rib (costal margin) and above the lower gluteal fold, accompanied by pain in the legs. Low Back Pain (LBP) is not a disease or a diagnosis but instead triggers the term used for pain syndromes in which anatomical structures are affected in various ways by the duration of pain. Low Back Pain cases worldwide vary annually, reaching 15 to 45%. WHO shows that 33% of the population in developing countries experience persistent back pain. The prevalence of musculoskeletal disorders in Indonesia is 11.9% based on diagnosis by health workers, 24.7% based on diagnosis or incidence, and about 4.73% in North Maluku. Prevalence has increased significantly at the age of 35 to 55 years. The Lumbosacral Vertebrae examination technique is an initial examination to determine the presence of LBP abnormalities in the lumbosacral. The most frequently used radiological procedure in cases of LBP is a lumbosacral examination using anteroposterior (AP) and lateral projections. This research used a descriptive and retrospective approach. This research was conducted at the Radiology Installation of Tidore Islands Hospital and Jailolo Hospital for one year, January-December 2021. The results showed that the lumbosacral check in patients with clinical Low Back Pain (LBP) in the Radiology Installation of Tidore Islands Hospital and Jailolo Hospital was 64 at the Tidore Islands Hospital and 72 at the Jailolo Hospital. The people with the highest age in the two hospitals is the age range of 46-55 years, dominated by women (57.8%) at the Tidore Islands City Hospital and men (59.7%) at Jailolo Hospital. Also, the characteristics of Low Back Pain (LBP) based on the lumbosacral examination were lumbar spondylosis (43.8%) at the Tidore Islands Hospital and (41.7%) at the Jailolo Hospital.

KEYWORDS

Low Back Pain (LBP), Lumbosacral examinations, Tidore Islands Hospital, Jailolo Hospital

ARTICLE INFORMATION

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1. Introduction

The International Classification of Disease (ICD) states that Low Back Pain (LBP) is a condition of pain and discomfort in a person under the angle of the last rib (costal margin) and above the lower buttock fold (inferior gluteal fold) accompanied by pain on limbs. Low Back Pain (LBP) is no disease or diagnosis but a trigger term for pain syndromes in which anatomical structures are affected in various ways by the duration of pain. Usually means pain, muscle tension, or feeling of lower back stiffness, with or without back leg pain.

Low Back Pain cases worldwide vary annually, reaching 15 to 45%. Anggraika et al. (2019) state that 33% of the population in development experiences painful back pain. Based on study data from Western countries, it was revealed that Low Back Pain affects approximately 40% to 60% of the population's age productivity. Besides, it affects the quality of life due to a

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long disturbance from Low Back Pain.

Prevalence disturbance in musculoskeletal in Indonesia is as significant as 11.9% based on diagnosis power health, 24.7% based on diagnosis or incident, and around 4.73% in Maluku North. So far, there is yet to be data about the prevalence of painful waist in Indonesia, and the amount of painful back pain in Maluku North is not certain. Prevalence has increased significantly for people from age 35 to 55 years. People at risk of LBP experience enhancement remembering anomaly disc hernia at carry-on age.

Several inspection radiology for the abnormality of LBP in the lumbosacral could be conducted using CT scans, MRI, and conventional radiography. Technique inspection Vertebrae Lumbosacral is beginning to know the existence of abnormality LBP on lumbosacral. Inspection Lumbosacral radiographs are a complementary examination in establishing the diagnosis of LBP. This check can show spaces between the vertebrae or spinal changes. According to Bontrager (2018), the most frequently used radiological procedure in cases of LBP is the lumbosacral examination using a projection Anteroposterior (AP) and lateral. (Putri 2021)

Based on the description above, the number of LBP cases worldwide varies annually, reaching 15 to 45%. The prevalence of musculoskeletal disorders in Indonesia is 11.9% based on a doctor's diagnosis of health, 24.7% based on diagnosis or incidents, and around 4.73% in Maluku North. Also, the procedure radiology most often used in case LBP is inspection lumbosacral.

2. Method

This study adopted a descriptive, retrospective approach at the Radiology Installation RSD Tidore Island and RS Jailolo from January to December 2021. The population of this study consisted of all patients suffering from Low Back Pain (LBP) using radiology RSD in Tidore Island Hospital and Jailolo Hospital between January and December 2021. The total population sampling was used in this study (65 samples in House Sick Area City Tidore Island and 75 samples in House Sick Jailolo).

The data used in this study were secondary data obtained directly from the hospitals using data record medical inspection lumbosacral on sufferer *Low Back Pain (LBP)* in Installation radiology RSD Tidore Islands dan Jailolo Hospital for January-December 2021. The data was analysed descriptively and grouped based on criteria inclusion and exclusion that the researchers set.

The data analysis method was used in managing research data to obtain a conclusion from the problem under study. The data in this study were obtained from medical record data on Lumbosacral examination in patients with *Low Back Pain (LBP)* at the Radiology Installation of RSD Tidore Kepulauan dan RS Jailolo in 2021. Data were then arranged and grouped using the SPSS. The data was then analyzed based on variables and presented using charts and tables. The analysis used in this study was univariate, aiming to explain or describe the characteristics of every variable in the study.

3. Results

This research was conducted in the Tidore Islands City Regional Hospital and House Sick Jailolo. The study was conducted to gather data on medical patients with Low Back Pain (LBP) from January to December 2021. Data were obtained from the medical records and processed using univariate analysis. The study's results revealed that the number of patients with Low Back Pain (LBP) who met the criteria in this study was 64 of the 65 at the City Regional Hospital Tidore Island and 72 of 75 in House Sick Jailolo.

3.1 Characteristics General

Table 4.1 scatter characteristics Type Gender

| Type Gender | Total | Percentage (%) |
|-------------------------------|-------|----------------|
| <u>RSD City Tidore Island</u> | | |
| men | 27 | 42.2 |
| Women | 37 | 57.8 |
| <u>RS Jailolo</u> | | |
| Men | 43 | 59.7 |
| Woman | 29 | 40.3 |

Table 4.1 shows the number of patients studied in both hospitals. More specifically, in RSD City Tidore Island Hospital, 27 men and 37 women were examined. On the other hand, 43 men and 29 women were studied at the Jailolo Hospital.

Table 4.2 scatter characteristics Age

| Age | Total | Percentage (%) |
|--------------------------------------|-------|----------------|
| A. RSD City Tidore Island | | |
| 6 - 11 Year (Kids) | 0 | 0 |
| 12 - 16 Years (Teenagers Initial) | 2 | 3.1 |
| 17 - 25 Year (Teenager End) | 4 | 6.3 |
| 26 - 35 Year (Adult Beginning) | 7 | 10.9 |
| 36 - 45 Year (Mature End) | 10 | 15.6 |
| 46 - 55 Year (elderly Initial) | 18 | 28.1 |
| 56 - 65 Year (elderly End) | 15 | 23.4 |
| > 65 Year (Seniors) | 8 | 12.5 |
| B. RS Jailolo | | |
| 6 - 11 Year (Children) | 1 | 1.4 |
| 12 - 16 Years (Teenagers Beginning) | 0 | 0 |
| 17 - 25 Years (Teenagers End) | 6 | 8.3 |
| 26 - 35 years old (Mature Beginning) | 8 | 11.1 |
| 36 - 45 years old (Mature End) | 16 | 22.2 |
| 46 - 55 Year (Elderly Beginning) | 19 | 26.4 |
| 56 - 65 Year (elderly End) | 14 | 19.4 |
| > 65 Year (seniors) | 8 | 11.1 |

Table 4.2 shows that in RSD City Tidore Island, there is a difference in the scatter age of the people under study.

In addition, at the Jailolo Hospital, the research subjects in the age group 6-11 years (children) amounted to 1 person (1.4%), age group 12-16 years (early teens) no patients in this age group, group age 17-25 years (late teens) amounted to 6 people (8.3%), age group 26-35 years (early adults) amounted to 8 people (11.1%), the age group of 36-45 years (late adults) was 16 people (22.2%), group age 46-55 year (elderly beginning) amount 19 people (26.4%), group age 56-65 year (elderly final) totalled 14 people (19.4%). The age group over 65 (seniors) comprised 8 people (11.1%).

Table 4.3 scatter characteristics subject per month

| scatter Subject Per Month | Total Percentage |
|----------------------------------|------------------|
| A. RSD City Tidore Island | |
| January | 46.3 |
| February | 710.9 |
| March | 46.3 |
| April | 710.9 |
| May | 34.7 |
| June | 69.4 |
| July | 34.7 |
| August | 6 |
| | 9.4 |

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| | | |
|----------------------|----|------|
| September | 6 | 9.4 |
| October | 2 | 3.1 |
| November | 4 | 6.3 |
| December | 12 | 18.8 |
| B. RS Jailolo | | |
| January | 4 | 5.6 |
| February | 5 | 6.9 |
| March | 4 | 5.6 |
| April | 9 | 12.5 |
| May | 7 | 9.7 |
| June | 6 | 8.3 |
| July | 8 | 11.1 |
| August | 3 | 4.2 |
| September | 5 | 6.9 |
| October | 4 | 5.6 |
| November | 7 | 9.7 |
| December | 10 | 13.9 |

Based on Table 4.3, the scatter subject study per month varied enough in RSD. In The City of Tidore Islands, namely in January, there were 4 research subjects (6.3%), February had 7 subjects (10.9%), and March had issues. The research was 4 people (6.3%). In April, there were 7 research subjects (10.9%). In May, there were 3 research subjects (4.7%). In June, there were subjects study amount 6 people (9.4%), the month of July had subject study consisted of 3 people (4.7%), the month of August there is subject study amount 6 people (9.4%), the month of September had subject study totalled 6 people (9.4%), in October there were 2 research subjects (3.1%), month November has 4 research subjects (6.3%). December has subjects study most many between the month and 12 people (18.8%).

Besides that, it could also be seen scattered subject studies per month in RS Jailolo. In January, there were 4 research subjects (5.6%), and in February, there were subjects. The number of research subjects was 5 people (6.9%). In March, the research subjects were 4 people (5.6%). In April, there were 9 research subjects (12.5%). In May, there were subjects. The number of research subjects was 7 people (9.7%). In June, there were 6 research subjects (8.3%). In July, the subject study included 8 people (11.1%). In August, there is a subject study amount 3 person (4.2%), and September, has a subject study amount of 5 people (6.9%). The month of October had a subject study amount of 4 people (5.6%), the month of November had a subject study amounted to 7 people (9.7%), and the month of December had the most research subjects among the months other, which is 10 people (13.9%).

3.2 Characteristics Results Inspection Lumbosacral

Table 4.4 scatter Results Inspection Lumbosacral

| Results Check | Total | PercentageLumbosacral |
|------------------------------------------|-------|-----------------------|
| A. <u>RSD Tidore</u> | | |
| Not look abnormality radiological | 11 | 17.2 |
| Fracture Compression | 2 | 3.1 |
| Muscle Spasm | 23.1 | |
| Lumbarization | 11.6 | |
| Scoliosis Lumbar | 1 | 1.6 |
| Spondylolisthesis | 69.4 | |
| Spondylosis Lumbar | 28 | 43.8 |
| Spondylosis Lumbaris + Spondylolisthesis | 13 | 20.3 |
| B. <u>RS Jailolo</u> | | |
| Not look abnormality radiological | 10 | 13.9 |
| Fracture Compression | 1 | 1.4 |
| Scoliosis Lumbar | 2 | 2.8 |
| Spondylolisthesis | 912.5 | |
| Spondylosis Lumbar | 30 | 41.7 |
| Spondylosis Lumbaris + Spondylolisthesis | 19 | 26.4 |
| Bones intact, Stone Channel Urinary | 1 | 1.4 |

Table 4.4 shows that the distribution of research subjects based on the results of the lumbosacral examination is quite varied in the Tidore Islands City Hospital. As many as 11 people (17.2%) have no radiological abnormalities; the rest have radiological abnormalities. Abnormality pictures The radiological findings found were compression fractures and muscle spasms in 2 people each (3.1%), lumbarization and lumbar scoliosis in 1 person (1.6%), spondylolisthesis each as much 6 persons (9.4%), spondylosis lumbar as much 28 people (43.8%), spondylosis lumbar accompanied spondylolisthesis, as many as 13 people (20.3%).

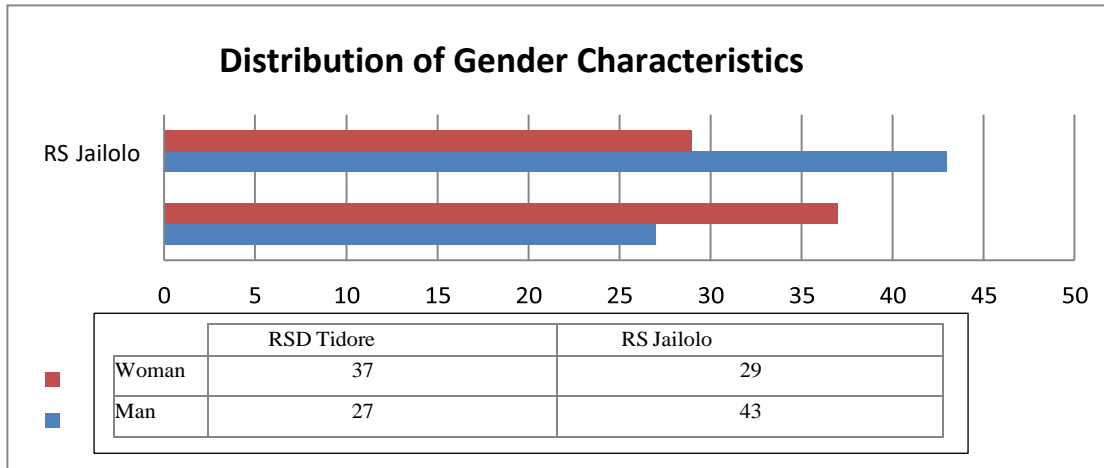
In addition, it can be seen that the distribution of research subjects is based on the results of the examination lumbosacral in RS Jailolo. As many as 10 people (13.9%) did not find abnormality in radiology. The remainder found radiological abnormalities. The radiographic abnormality found is a fracture compression as much 1 person (1.4%), scoliosis lumbar as much 2 people (2.8%), spondylolisthesis as much 9 people (12.5%), spondylosis lumbar as much 30 people (41.7%), spondylosis lumbar accompanied spondylolisthesis as many 19 people (26.4%), .and bones intact accompanied by stone channel urine as many 1 people (1.4%).

4. Discussion

Based on the results of the study about characteristics of Low back pain (LBP) on inspection lumbosacral in RS City Tidore Island and RS Jailolo period January until December 2021, the sample originated from data record medical, so obtained discussion study as follows:

Based on the results study, data obtained from the medical record number of patients with *Low Back Pain* (LBP) who met the inclusive criteria in this study were 64 of the 65 samples at the City Hospital Tidore Island and 72 from 75 samples in RS Jailolo. Factors that influence existence criteria exclusive in this study include research subjects who cannot represent the sample because it does not qualify as the research sample. The exclusion criteria in this study are data records for medical patient LBP, which is incomplete.

Picture 4.1 scatter characteristics subject type gender

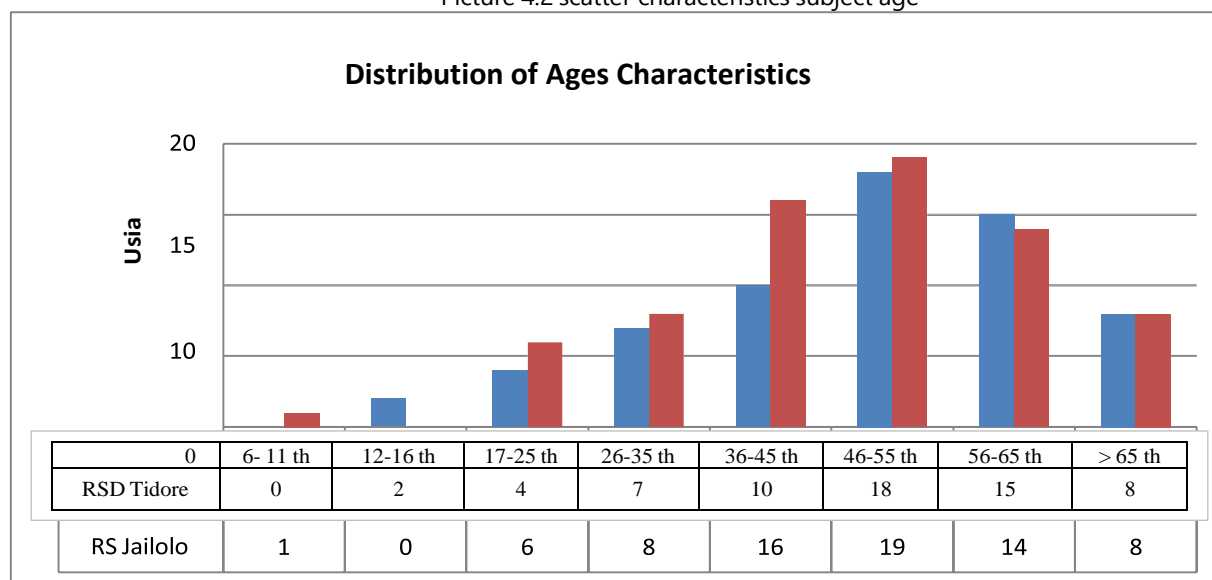


Based on the study results, most research subjects at Tidore Hospital were gender women, with a total of 37 people (57.8%), and the research subjects were 27. men person (42.2 %). Whereas in RS Jailolo subject study, most in RSD Tidore manifold gender men with a total of 43 people (59.7%) then the research subjects were 29. women person (40.3 %).

The results obtained are contradictory between the 2 hospitals. It is similar to the results of a 2018 study by Ramdas and Jella at Bhaskara Medical College India India entitled "Prevalence and Risk Factors for Low Back Pain" from 206 people found 118 people (57.3%) manifold gender women. and 88 people (43.7%) manifold gender man. Results studied the other year, 2019, by Ida Astuti and guys from 84 respondents titled "Connection Low Back Pain with Habit Smoke, index mass body and workload on scavengers in Subdistrict Wetan Bandung in the range of March to July 2018" are not under the results of this study. Results show that the respondents who most experience complaints of LBP is the respondent were 74 men (88%), compared to 10 women (12%). Based on the comparison results study, line extensive could depict the prevalence and factor risk LBP incidents based on type gender which different have risk complaint LBP which same, good for Men as well as women. (Astuti 2019) (Ramdas 2018)

Physiologically, there are differences in pain perception and sensitivity between men and women. Level hormones differ Among Men and women, with women having estrogen and progesterone higher and men having higher testosterone levels. Estrogen hormone woman interacts with neurotransmitters to modulate pain responses in pain recognition pathways, triggering an increase in the sensitivity of spinal nerve fibres to pain, thereby increasing the pain perception. In addition, estrogen protects bones from damage to bone cells (osteoclasts). As women age and enter menopause, the transition process can cause decreased estrogen production, resulting in a decrease in bone density, leading to damaged bone in women. Another factor suspected to play a role in the complaint of LBP in a woman is pregnant, and complaint of LBP During pregnancy could occur because enhancement burdens the body of women during pregnancy. Testosterone in men is contained in the androgen hormone, which relieves pain. However, Men generally do a heavier and longer profession than women, which could trigger enhancement problems in musculoskeletal health. Based on the difference in physiological habits between men and women, it can be concluded that men and women can experience symptoms of LBP.

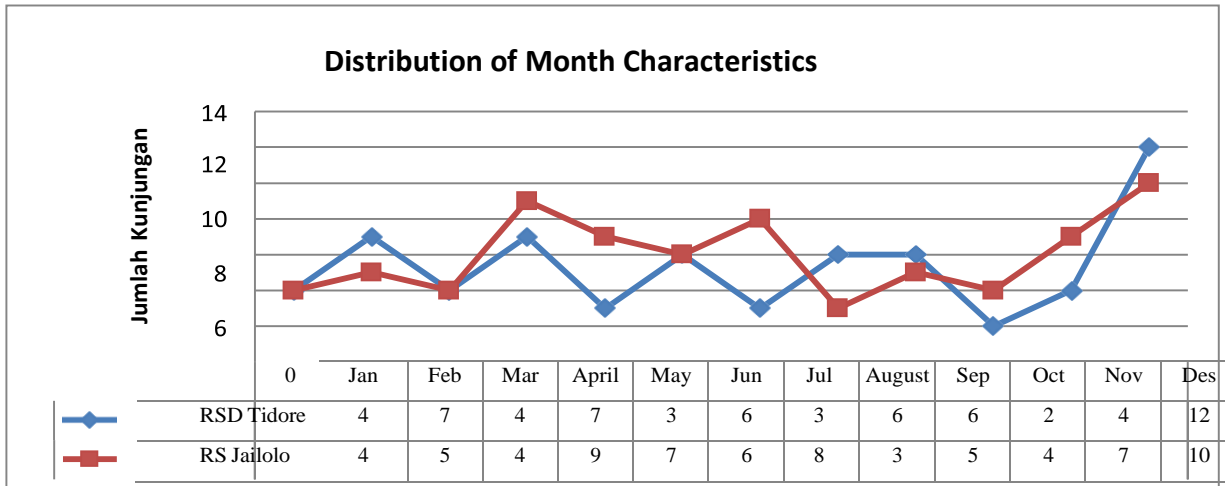
Picture 4.2 scatter characteristics subject age



Based on the results study, scatter characteristics LBP to group age patients obtained results that illustrate that the age range of 46 – 55 years (early elderly) is an age category who experienced the most LBP complaints in both hospitals with a total of 18 people (28.1%) in Tidore Hospital and 19 people (26.4%) in Jailolo Hospital. A range of other ages who are also considered capable give the potential for improvement LBP complaints in a person can be noticed in the age range 56 – 65 years (old age), 15 people (23.4%) at Tidore Hospital, and the age range is 36-45 years (adults end) 16 person (22.2%) in RS Jailolo.

This aligns with the research results conducted by Nanda, Ieva, and Fahmi in the year 2018 to 76 sample study titled 'Description Factor Risk Patient Low Back Pain (LBP) in Bandung City Hospital for the January-December 2018 period'. The results conclude that people over 50 are at the highest risk of LBP—39.5% of whom have the condition. Relatively, a young person is more likely to experience LBP. Another study by Zhari Zafitri in 2019 was conducted on patients with LBP. Results study this in a study titled 'Characteristics Patient Low Back Pain (LBP) at the Medical Rehabilitation Polyclinic of the Tidore and Islands City Hospital for the January-June 2019 period'. One The conclusion drawn from this study is that patients in the elderly to advanced category age — older than 61 years and younger than 70 — most likely suffer LBP. This applies to 41.2% of people in this age group; 9 out of 14 patients were in this age group. In addition, patients older than 51 and younger than 60 were found to have a 26.5% chance of suffering from LBP; 9 out of 14 patients were also in this age group. Based on the comparison results study, the older somebody is, the more the risk of suffering LBP complaints. (Goin et al 2019), (An N et al 2018)

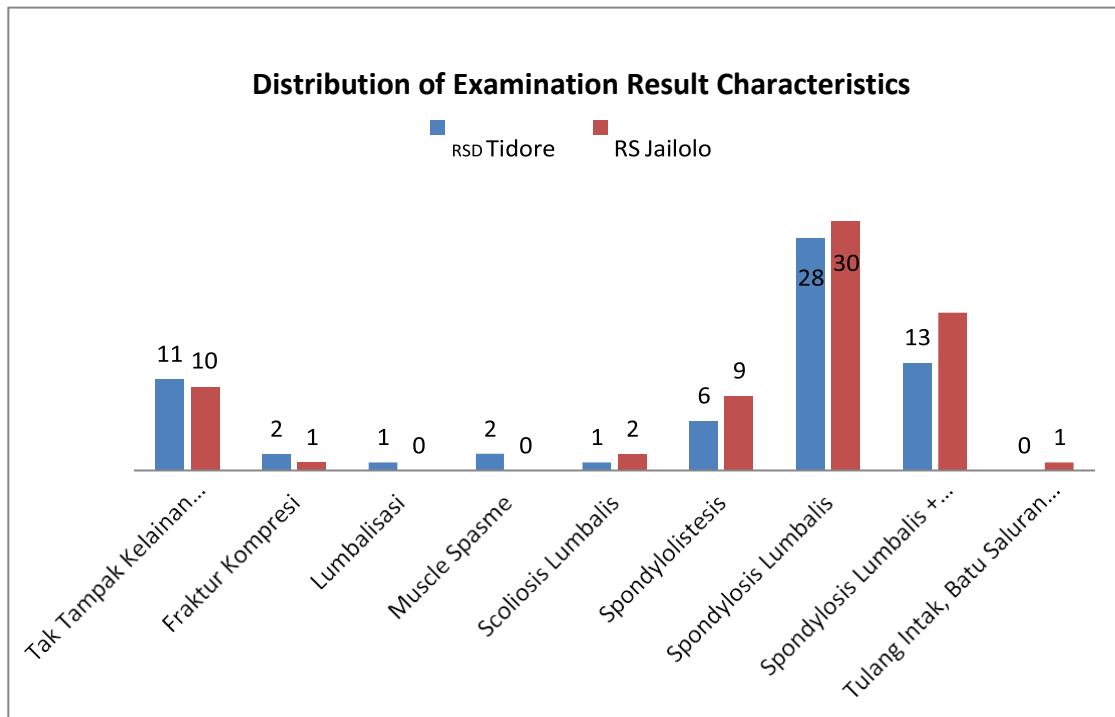
Physical degeneration often causes several problems with bones, especially those behind. The risk of LBP increases with age due to problems with the spine, such as abnormalities in the intervertebral disc area. Degenerative processes in the intervertebral disc area can cause problems in the spine, which are clinically manifested by the appearance of sickness. Pain can occur due to changes in the elasticity of the intervertebral disc, reducing the consequence process degenerative so that the surface discus intervertebral, which plays a role in supporting body load, is not optimal. In addition, other causes, such as the presence of cellular necrosis, can also occur and influence LBP on the bone structure because cell necrosis could trigger the release of cytokines that make free nerve endings sensitive to their pain-sensing appearance. At age, fertile or young, somebody tends to experience fewer problems with healthy bones because the physiology body is still in Step growth and maturation. However, at the age of young, healthy bone can still be disturbed by the mechanism of infection, tumour, or trauma experienced by a person. Therefore, It can be concluded that the degenerative process that occurs with age triggers an increase in incident LBP in somebody. (An N et al 2018) (Andarini 2020)



Picture 4.3 Characteristic distribution subject month

Based on the period taken in a study, the highest number of visits occurred in December in both hospitals. However, this does not show a direct influence of LBP.

Picture 4.4 scatter characteristics subject results inspection



Based on the study's results, the total sample at the Tidore Islands City Hospital was 72. At Jailolo Hospital, as many as 64 samples from the examination found lumbar spondylosis in as many as 28 people (43.8%) in City Hospital Tidore Islands and 30 people (41.7%) in RS Jailolo. This follows a 2017 Komang Mila study in Denpasar, which found that 57.9% of lumbosacral radiographs on the patient's LBP are spondylosis. Other studies published in 2018 by Edwin, Nigeria, showed that 44% of the imaging features of LBP patients were spondylosis. In addition, another study by Andela WA, Siti Rahmah Hospital, Padang, published in December 2021, shows that spondylosis is radiography lumbosacral, which is most general on patient LBP, until 92.3%. (Mila et al 2019) ,(Omon 2017), (Andela et al 2021)

Spondylosis is a large term for describing several processes of vertebral degeneration and osteophyte formation. Osteophytes are

abnormal bone growth in the spine, stress mechanisms from repetitive injury, or microtrauma that can cause LBP. The risk factor was found that lumbosacral spondylosis was associated with poor posture, always wrong, stress, form body, or form body. Change degenerative on the bone behind The lumbosacral can be asymptomatic or symptomatic. The most common symptoms are LBP, muscle spasms, limited motion, and dysfunction in general. (Andela et al 2021)

5. Conclusion

Based on the results of the study which has conducted in RSD City Tidore Island and RS Jailoloon the data of several people diagnosed as *Low Back Pain (LBP) patients* for the January period until December 2021, which was obtained through the collection of medical record data, the researchers concluded the following:

1. Obtained 64 samples in RSD from The city of Tidore Islands and 72 samples at the Jailolo Hospital from the recorded data diagnosed as patients with LBP who met the study criteria from January until December 2021.
2. Based on the gender of the patient, the incidence of LBP was the highest in the Tidore Kepulauan City Hospital, with females as much as 57.8% and males as much as 42.2%. Meanwhile, at the Jailolo Hospital, most men manifold gender Men as much 59.7% than women 40.3%.
3. Based on the patient's age, the incidence of LBP is most commonly found in the age range of 46-55 years (carry-on age beginning), as much as 28.1% at RSD Tidore and 26.4% at RS Jailolo.
4. Based on the period, the highest number of visits occurred in December, 18.8% in RSD City Tidore Island and 13.9% in RS Jailolo. Will but, Thing this no show influence direct happening LBP.

Based on the results inspection, the diagnosis of LBP photo lumbosacral the most is spondylosis lumbar as much as 43.8% in RSD Tidore City Island and 41.7% in RS Jailolo.

5.1 Suggestions

Based on the results of the research that has been done, the researchers put forward some suggestions as follows:

1. For Public

Results from the study are expected to become exposition beneficial about LBP so that the Public can prevent LBP and have a pattern of life healthy for themselves and family.

2. For Researcher Next

Hopefully, results from the study can make an ingredient reference for researchers who want to study LBP. Besides that, could a development study about LBP next in the North Maluku region? Then, it is necessary to do further research by adding a sample study and could use variables other than those related to LBP.

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