

MEDICA

(International Medical Scientific Journal)

Vol.5, No.3, October 2023, pp. 89 – 96

ISSN 2622-660X (Online), ISSN 2622-6596 (Print)

<https://journal.ahmareduc.or.id/index.php/medica>



Characteristics of Lower Back Pain Patients at Sorong Regency General Hospital in 2022

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Info Article

Article History:

Received:

4 August 2023

Accepted:

5 September 2023

Published:

30 September 2023

Keywords:

Low Back Pain

Risk Factors

Patient Characteristics

Abstrak

Lower back pain (LBP) is a condition where a person feels pain in the lower back, the pain felt can originate from the structures in the lower back, including joints, muscles, bones, nerves, ligaments and others. LBP sufferers can incur quite large costs in their treatment, apart from that LBP can also cause a lack of working days because of productivity limitation. Factors that can influence the occurrence of LBP are age, gender, occupation, body mass index, smoking habits and many more. The aim of this study is to determine the characteristics of LBP patients at the Sorong Regency general hospital (RSUD) in 2022. This research uses a descriptive observational design. This research took place from September to October 2023 at the Sorong Regency General Hospital. Data collection was obtained from secondary data with a sample size of 77 LBP patients from January to December 2022. The results of this study show that LBP patients at Sorong Regency General Hospital from January to December 2020 were mostly in the 46-55 age year group, totaling 26 patients (33.8%), predominantly occurred to female with 43 patients (55.8%) who worked as housewives totaling 33 patients (42.9%), Non-Papuan ethnic group category amounting to 42 patients (54.5%) and most had overweight body mass index (BMI) of 23-24.9 kg/m² totaling 33 patients (42.9%). The conclusion is that LBP predominantly affected individuals aged 46–55 years, with a higher incidence in females, particularly housewives. Most patients belonged to the Non-Papuan ethnic group and had an overweight body mass index. These results provide an overview of the demographic and clinical profiles of LBP patients in the region, which may support better-targeted prevention and treatment strategies.

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1. INTRODUCTION

Low back pain (LBP) is pain in the spine, which can be felt mainly in those who are elderly because this pain can interfere with the sufferer's daily activities. According to the Healthy Back Institute, the lumbar region is a part of the vertebrae that is very sensitive to injury or damage because the lumbar region receives the greatest load when the body moves and supports body weight (Sani, & Durahim, 2021). World Health Organization (WHO) states that LBP has been found in hundreds of millions of people in the world, and is also 1 of the 10 most common diseases in developing countries (Cahya, et al., 2021).

The prevalence of LBP generally varies every year, with figures reaching 15-45% (Nurfajri, Subakir, & Hapis, 2022). According to WHO, the prevalence of LBP in developing countries reaches 33% (Prayogo, & Sutikno, 2021). In western countries the prevalence of LBP is around 36.2% - 57.9%, while in Asia, it is 36.8% - 69.7%, this shows that the prevalence rate of LBP in Asian countries is higher (Simbolon, Wijayanti, & Widyadharma, 2021). The Association of Indonesian Neurologists (PERDOSSI) noted that in 2002 the prevalence of LBP in teaching hospitals in Indonesia reached 25% and increased to 35.86% in 2016 (Seyed, & Mohamed, 2021). Meanwhile, the prevalence of joint disease in West Papua is based on data in the Riskesdas report, namely according to a doctor's diagnosis, over 15 years it reaches 8.15% (Andini, 2015). The prevalence of joint disease in Sorong Regency has reached 7.04% (Badan Penelitian dan Pengembangan Kesehatan, Kementerian Kesehatan Republik Indonesia, 2019).

Causative factors include work position, age over 35 years, smoking, 5-10 years of work, obesity, and a family history of musculoskeletal diseases (Rahmawati, 2021). In research conducted by Goin *et.al* in 2019, regarding the characteristics of LBP patients in the medical rehabilitation polyclinic of the regional hospital in the city of Tidore Islands for the period January-June 2019, the majority were in the 61-70 year age group, 14 people (41.2%), there are equal numbers of women and men, on average 18 patients are civil servants (52.9%) and most often diagnosed with Hernia Nuclei Pulposi (HNP) are 19 people (55.9%) (Goin, Pontoh, & Umasangadji, 2019).

LBP is one of the health problems that is still high in the Sorong district area. The Regional General Hospital (RSUD) of Sorong district from 2019 to 2023 recorded more than a thousand cases of LBP visits. So, due to the high number of LBP complaints in Sorong district general hospitals, previous research also had several differences in the research variables taken and there was no data on "Characteristics of LBP Patients in Sorong district hospitals". The aim of this study is to determine the characteristics of LBP patients at the Sorong Regency general hospital (RSUD) in 2022.

2. METHOD

This research uses an observational descriptive design with a non-analytic retrospective descriptive method. This study aims to determine the characteristics of low back pain patients at the Sorong Regency General Hospital. Data collection was carried out for 2 months from August-September 2023. The population of this study were all LBP patients who received treatment at the Sorong General Hospital from January-December 2022. The population is 105 patients, and of these 105 patients, only 77 patients met the inclusion criteria included as sample. The sample selection in this research used the method total sampling, which is a sampling technique by selecting according to the population size included in the specified inclusion criteria. The sample in this study consisted of 77 LBP patients. Data processing is carried out in several stages, namely, Editing, Coding and Tabulation. Data analysis is in univariate form to provide a general overview of the data by describing each variable used in the research, carried out by

observing the frequency distribution of the data, which can be presented in the form of a table or narrative.

3. RESULTS AND DISCUSSION

The data collected from the samples were grouped into some categories such as age, gender, occupation, ethnic group, and body mass index (BMI), shown as follows.

Table 1. Frequency and percentage of LBP patients based on age categories

Age	Frequency	Percentage (%)
26 – 35 years (early adulthood)	7	9.1
36 – 45 years (late adulthood)	17	22.1
46 – 55 years (early elderly)	26	33.8
56 – 65 years (late elderly)	16	20.8
>66 years (seniors)	11	14.3
Total	77	100.0

Table 1 and Figure 1 above show the age groups of LBP patients with their respective groupings. The 26-35 year age group was 7 people (9.1%), the 36-45 year age group was 17 people (22.1%), the 46-55 year age group was 26 people (33.8%), the 56-65 year age group amounting to 16 people (20.8%) and the age group 66 years and over amounting to 11 people (14.3%). These results show that LBP patients at the Sorong Regency General Hospital are more in the age category of 46 to 55 years (early elderly).

Table 2. Frequency distribution and percentage of LBP patients based on gender categories

Gender	Frequency	Percentage (%)
Man	34	44.2
Woman	43	55.8
Total	77	100.0

Based on Table 2 above, the gender group of LBP patients is 34 male patients (44.2%), while there are 43 female patients (55.8%). This shows that LBP patients at the Sorong District Hospital are more women than men.

Table 3. Frequency distribution and percentage of LBP patients based on job category

Occupation	Frequency	Percentage (%)
Trader	2	2.6
Labor / Agriculture	12	15.6
Civil servants	16	20.8
Army/Police	1	1.3
Retired	6	7.8
Self-employed	7	9.1
Housewife	33	42.9
Total	77	100.0

From the table 3, it can be seen that the occupations of LBP patients vary, with 2 traders (2.6%), 12 workers/farmers (15.6%), 17 civil servants (20.8%), 1 Army/Police person (1.3%), retired 6 people (7.8%), entrepreneurs 7 people (9.1%), and housewives 33 people (42.9%). The largest occupational group is housewives.

Table 4. Frequency distribution and percentage of LBP patients based on ethnic group categories

Ethnic group	Frequency	Percentage (%)
Papuan	35	45.5
Non-Papuan	42	54.5
Total	77	100.0

In Table 4 above, the Papuan ethnic group is 35 people (45.5%), while the Non-Papuan ethnic group is 42 people (54.5%). From these results it was found that the majority of LBP patients were from Non-Papuan ethnic group.

Table 5. Frequency distribution and percentage of LBP patients based on BMI category

Body Mass Index (kg/m²)	Frequency	Percentage (%)
Low Body Weight (<18,5% kg/m ²)	4	5.2
Normal (18,5 kg/m ² - 22,9 kg/m ²)	16	20.8
Excess Body Weight (23 – 24.9 kg/m ²)	33	42.9
Obesitas I (25- 29.9 kg/m ²)	21	27.3
Obesity II (≥30 kg/m ²)	3	3.9
Total	77	100.0

Based on Table 5, it was found that the BMI group of LBP patients consisted of 4 underweight (5.2%), 16 patients categorized as normal (20.8%), 33 patients with overweight (42.9%), obesity grade I was 21 people (27.3%) and obesity grade II was 3 people (3.9%). The most common BMI category for LBP patients is the overweight group.

DISCUSSION

In this study, it was found that the majority of LBP patients were aged 46 to 55 years with a total of 26 people (33.8%). This research is in accordance with research conducted by Sari et al., which in the results of the research found the highest age group from 50 to 59 with 19 patients (29.2%) followed by the 60 to 69 year age group with 13 patients (20%) and the 40 to 49 year age group with 12 people (18.5%) (Sari, Martadiani, & Asih, 2019). Apart from that, research conducted by Purnamasari et al., (2010) According to this research, the largest age group was 54 years and above, which shows a tendency that LBP is a degenerative disease problem (Purnamasari, Gunarso, & Rujito, 2010).

Increasing age is one of the causes of bone degeneration, generally at the age of 30 years degeneration occurs from tissue damage which then forms scar tissue and apart from that, the decrease in fluid causes reduced stability of bones and muscles (Sahara, & Pristya, 2020). In the age range of 30 to 59 years there is an increase in the prevalence of LBP, this is associated with work carried out beyond capacity, at productive age and degenerative diseases at older age. In general, people aged 70 years and over experience a decline due to a decrease in activity and work, resulting in a decrease in the risk of LBP (Sari, Martadiani, & Asih, 2019). The older a person is, the higher a person's risk of developing LBP because it is triggered by a decrease in bone elasticity (Sahara, & Pristya, 2020). What can cause a decrease in the number of LBP complaints at older ages is because those who experience LBP do not seek treatment at health services (Akbar, & Ardiansyah, 2015). The Sorong Regency Regional Hospital which is located quite far from many residential areas, this could be the cause of the decline in visits from the elderly and above.

In this study, the results showed that women were more likely to suffer from LBP with a total of 43 patients (55.8%). Research showing that women are more affected by LBP was also reported by Islami et al., there were 49 female LBP patients (64.5%), out of a total of 76 samples (Islami, Akbar, & Hakim, 2020). Research conducted by Akbar et al.

also obtained similar results where there were more female LBP patients with 33 patients (63.5%) from a total of 52 samples (Akbar, & Ardiansyah, 2015). Physiologically, there are differences in sensitivity to pain between men and women (Pangemanan, Engka, & Supit, 2012). This is due to the influence of gonadal hormones and processes from the central nervous system. In women, the hormone estrogen causes an increase in the inflammatory response which causes pain, besides that in women estrogen can trigger spinal nerve fibers to produce N-methyl-D-aspartate (NMDA) which causes a decrease in the threshold for stimulation of the nociceptor nerve so that the sensitivity of the pain is felt. by women is increasing (Islami, Akbar, & Hakim, 2020). Apart from that, estrogen in women causes an increase in the formation of proteoglycans, which function to lubricate the body's joints, regulate bone and subchondral changes, and regulate cells in cartilage to work according to their function. In postmenopausal women, estrogen levels decrease which will then cause a lack of lubrication in the joints and pain due to osteoarthritis or inflammation of the joints (Nurlis, 2012). The opposite was found from this research, namely that the majority of LBP patients were found to be male with a total of 108 patients, while female LBP patients were 68 patients (Pangemanan, Engka, & Supit, 2012). This is associated with men's work being said to be heavier or overloading the lower back than women Sari, Martadiani, & Asih, 2019).

In this study, it was found that the highest number of jobs with LBP complaints were in the housewife group, totaling 33 patients (42.9%). Physical activities carried out by housewives at home such as sweeping, washing clothes, mopping the floor and carrying children involve unergonomic body positions, such as unergonomic sitting positions, sideways or bent back positions when washing clothes, lifting heavy loads in a manner or position, as well as other awkward positions that are done repeatedly, can trigger health problems such as LBP (Islami, Akbar, & Hakim, 2020). This kind of method can then cause stress or mechanical pressure on the lumbar region and then trigger pain in the lower back (Islami, Akbar, & Hakim, 2020; Zuhair, et al., 2021). Another thing that can have an influence is the housewife's own working time, which is more than 8 hours and is mostly done standing up. Standing more frequently will increase the pressure on the intervertebral discs and the muscles will work hard to maintain pressure on the lower back (Zuhair, et al., 2021). Another factor that causes the largest number of work group visits are domestic workers and civil servants themselves because the location of the Sorong Regency Regional Hospital is not located close to agricultural areas and ports which are directly adjacent to workers who are more at risk such as farmers and laborers.

The research results found that more LBP complaints were experienced by patients of non-Papuan ethnic, totaling 42 people (45.5%). One of the characteristics of Papuan people is that they have dark skin color (Pamungkas, 2015). LBP complaints were found in white people with a total of 4353 (83%) (Stevens et al., 2021).

From a research conducted by Wagner et al., state that the bone weight of the black race is heavier than that of the white race, in addition to the bone density and length of the bone proportion of the black race is also higher than that of the white race (Wagner, & Heyward, 2000). Hochberg et al., in his research found that higher bone strength in black people could be due to several factors including stronger skeletal development in childhood and adolescence, slower bone loss in adulthood due to reduced rates of bone turnover and greater ability to to replace lost bone due to better bone formation, besides that bone weight affects muscle strength (Hochberg, 2007). The development of a stronger skeleton during childhood and adolescence depends on the interaction of genetic and environmental factors, including nutritional and lifestyle factors (Hochberg, 2007). The development of physical abilities of Papuan students had higher joint movement abilities compared to non-Papuan students (Sulaeman, & Kunaefi, 2015).

Specific research regarding the bone and muscle strength of black-melanesian Papuans and other races who also have the same skin color is still so few, so discussion regarding race is still lacking. The research location is also included in the trans area so this could be a trigger for fewer Papuan patient visits, apart from that there are also differences in other characteristics that the Papuan race has with the black race in America. These racial differences can be seen from skin color, hair color, hair shape, height, body shape, shape of body organs such as eyes, nose, ears, and so on (Al Hafizh, 2016). This study found that most LBP complaints were experienced by patients with overweight BMI (BMI 23 – 24.9 kg/m²) with a total of 33 patients (42.9%). This research has similar results to research conducted by Sulaeman and Kunaefi in 2015 where they found that LBP complaints were mostly found in people with a BMI of 18.5 kg/m² up to 25.0 kg/m² (Sulaeman, & Kunaefi, 2015).

Increasing body weight results in an increase in the burden on the spine when it receives pressure, this makes it easier for the spine to become damaged (Andini, 2015). Body weight is an example of a lifestyle. The more irregular a person is in their lifestyle with disabilities, the higher the risk of obesity. This is what has an impact on the risk of developing LBP and even other diseases (Mardatillah, Putra, & Nova, 2022; Nugraha, Respati, & Rachmi, 2020). Excess body weight can also cause the muscle tone in the abdomen to weaken so that the body's center of gravity will be pushed forward, which will then cause the lumbar lordosis to increase, which will then cause fatigue in the paravertebral muscles, which then becomes a risk of LBP. Excessive body weight can also cause freedom of movement in the lumbar region which influences the occurrence of LBP (Negara, Wibawa, & Purnawati, 2015). Obesity also causes biochemical and inflammatory processes in the vertebral bone structures. This is usually associated with degeneration of the disc caused by increased body weight which ultimately causes damage to, for example, the disc, joints and ligaments.

4. CONCLUSION

The conclusion is that LBP predominantly affected individuals aged 46–55 years, with a higher incidence in females, particularly housewives. Most patients belonged to the Non-Papuan ethnic group and had an overweight body mass index. These results provide an overview of the demographic and clinical profiles of LBP patients in the region, which may support better-targeted prevention and treatment strategies.

ACKNOWLEDGEMENT

We would like to send our regards and thank to Faculty of Medicine, University of Papua and Sorong Regency General Hospital.

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