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THE RELATIONSHIP OF RESPONDENT CHARACTERISTICS WITH THE LEVEL OF PAIN IN PATIENTS WITH NUCLEAR HERNIA DISEASE PULPOSUS (HNP) AT THE PMC HOSPITAL

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ABSTRACT

Hernia of the nucleus pulposus (HNP) is a pathological condition in which there is protrusion of the annulus fibrosus and the nucleus pulposus into the lumen of the vertebral canal. The incidence of HNP is approximately 5 to 20 cases per 1000 adults per year and occurs most often in people in the third to fifth decade of life, with a male to female ratio of 2:1. Low back pain is the most common cause of work-related disability. Decreased quality of life is something that is often found in patients with low back pain. The aim of this study was to determine the relationship between respondent characteristics (age, gender and occupation) on the pain level of patients with HNP at the PMC Hospital Polyclinic. This research is qualitative research with a correlation design. The sample for this study was 30 patients with HNP who came to the PMC Hospital polyclinic. Based on the results of research using the chi square test, it was found that gender characteristics and age characteristics were not related to the level of pain in HNP patients with p value = 1.000 & 0.272. Job characteristics are related to the pain level of HNP patients with p value = 0.039. Based on the results of this research, it is hoped that health workers can provide education to the adult population about preventing the incidence of HNP disease, to reduce the incidence of HNP disease in the city of Pekanbaru.

Keywords: Pain; Age; Gender; Occupation; Hernia Nucleus Pulposus

INTRODUCTION

Herniated Nucleus Pulposus (HNP) or commonly known as a pinched nerve is a condition where the nucleus pulposus protrudes and then presses against the spinal canal through the torn annulus fibrosus. Hernia Nucleus Pulposus (HNP) is a disease that occurs when the soft cushion between the vertebrae becomes compressed and ruptures. This causes narrowing and pinching of the nerves that pass through the spine. This pain makes it difficult for patients to perform repetitive lifting movements, pulling, pushing, bending to the side (1).

Lack of information about the factors that influence the occurrence of Hernia Nucleus Pulposus (HNP) is the

cause of the high incidence of people complaining of lower back pain that spreads to the lower legs caused by HNP. Based on the research results, it was found that 8 out of 10 studies stated that the factors that dominate the occurrence of Hernia Nucleus Pulposus (HNP) are intrinsic factors, namely age, degenerative processes, body weight, health history, and gender. Physiotherapy interventions for HNP are SWD, TENS, hydrotherapy, McKenzie exercise, PNF, segmental traction, William flexion exercise, kinesio tapping (2).

The cause of Hernia Nucleus Pulposus (HNP) is usually that with increasing age degenerative changes occur which result in less flexibility and thinner nucleus pulposus (Moore and Agur, 2013). Apart from that, herniated nucleus pulposus

(HNP) is mostly caused by repeated moderate trauma to the intervertebral disc, causing tears in the annulus fibrosus. Apart from that, the main factor that causes HNP is degenerative where the elasticity of the annulus fibrosus decreases, causing tearing of the annulus fibrosus (3).

HNP sufferers have clinical manifestations of pain and a sensation of pressure centered on the lower back, middle area of the buttocks, calves, back of the heels and soles of the feet. Therefore, for HNP sufferers, pain is something that is always felt with varying pain scales. This HNP event will generally cause a sensation of pain from the buttocks and radiating to the legs. HNP sufferers often feel numbness and radiating pain. HNP is often caused by injury or inappropriate mechanical pressure over a long period of time and continuously. It is estimated that the prevalence of HNP sufferers reaches 1-3% of the total population with the highest incidence occurring in the age range of 30 to 50 years. Apart from that, HNP has a greater ratio in men compared to women, namely 2:1 (4).

According to the ILO in 2007, every year there are 1.1 million deaths caused by disease or work-related causes. The data also states that there were 300,000 deaths that occurred from 250 million accidents and the rest were deaths due to work-related diseases. Apart from occupational diseases that cause death, there are also other health problems that need attention, including deafness, musculoskeletal disorders, reproductive disorders, mental illness, nervous system and so on. Musculoskeletal disorders are disorders of the skeletal muscles caused by the muscles receiving static loads repeatedly and continuously over a long period of time and will cause complaints in the joints, ligaments and tendons (5).

Based on the background above, researchers are interested in finding out how the characteristics of respondents relate to the pain level of HNP patients at PMC Hospital. The characteristics of

respondents in this study were age, gender and occupation of patients with HNP.

RESEARCH METHODS

The type of research used is quantitative research with an observational analytical approach. Based on the time of the research, this research is a cross sectional study because the independent variables are the characteristics of the respondents (age, gender and occupation), as well as the dependent variable, namely the pain level of patients with HNP which will be studied at the same time. The location of the research was carried out at the PMC Hospital Polyclinic and the time the research was carried out was in August 2023. The population of this study was patients with HNP who came to the PMC Hospital neurological clinic, from which a sample of 30 respondents was taken with the inclusion criteria being patients with HNP who have not taken analgesics or are visiting for the first time for treatment.

The sampling technique used in this research is *Simple Random Sampling*, namely simple random sampling and the principle that each subject in the population has the same probability of becoming a member of the sample. This research uses data collection techniques with guided interviews, observation and documentation. The data collection tool used was a questionnaire sheet containing the patient's age, gender, occupation and pain level. The data analysis technique is using the *chisquare test*, that use the *Fisher exact test*.

RESULTS AND DISCUSSIONS

a. Age

Age is the respondent's age in years calculated from the time of birth until the year the research was conducted.

Table 1
Respondent Age Frequency Distribution

| No | Age | Amount | Percentage |
|----|----------------|--------|------------|
| 1 | Mature (35-55) | 10 | 33,3% |
| 2 | Elderly (>55) | 20 | 66,7% |

Based on the table above, most of the respondents were elderly, namely 20 people (66.7%).

b. Gender

Gender is a characteristic or division of two particular genders

Table 2
Respondent Age Frequency Distribution

| No | Gender | Amount | Percentage |
|----|--------|--------|------------|
| 1 | Male | 12 | 40% |
| 2 | Female | 18 | 60% |

Based on the table above, the majority of respondents were female, namely 18 people (60%).

c. Job

Job is the type of work that respondents do to meet family income.

Table 3
Respondent Job Frequency Distribution

| No | Job | Amount | Percentage |
|----|--------------|--------|------------|
| 1 | Non Physical | 3 | 3,7% |
| 2 | Physical | 27 | 87,1% |

Based on the table above, the majority of respondents' work is physical work, namely 27 people (87.1%).

d. Level of Pain

Level of pain is the pain or pain felt by patients with HNP

Table 4
Respondent Level of Pain Frequency Distribution

| No | Pain | Amount | Percentage |
|----|----------|--------|------------|
| 1 | Moderate | 4 | 33,3% |
| 2 | Severe | 26 | 86,7% |

Based on the table above, the majority of respondents experienced severe levels of pain, namely 26 people (86.7%).

e. Relationship between Age and level of pain in HNP patients

Tabel 5
Relationship between Age and level of pain in HNP patients

| | | Pain | | N | Pvalue |
|-------|---------|----------|--------|----|--------|
| | | Moderate | Severe | | |
| Age | Mature | 1,3 | 8,7 | 10 | 0,272 |
| | Elderly | 2,7 | 17,3 | 20 | |
| Total | | 4 | 26 | 30 | |

Based on table 5, we get pvalue = 0.272, where the Pvalue value is greater than the Alpha value = 0.05, which states that Ha is rejected, namely there is no relationship between age and the level of HNP pain experienced.

f. Relationship between Gender and level of pain in HNP patients

Tabel 6
Relationship between Gender and level of pain in HNP patients

| | | Pain | | N | Pvalue |
|--------|--------|---------|--------|----|--------|
| | | Moderat | Severe | | |
| Gender | Male | 1,6 | 10,4 | 12 | 1,000 |
| | Female | 2,4 | 15,6 | 18 | |
| Total | | 4 | 26 | 30 | |

Based on table 6, we get pvalue = 1.000, where the Pvalue value is greater than the Alpha value = 0.05, which states that Ha is rejected, namely there is no relationship between gender and the level of HNP pain experienced.

g . Relationship between Gender and level of pain in HNP patients

Tabel 7

Relationship between Job and level of pain in HNP patients

| | Job | Pain | | Total | Pvalue |
|--|------------|----------|--------|-------|--------|
| | | Moderate | Severe | | |
| | Non Physic | 2 | 1 | 3 | 0,039 |
| | Physic | 2 | 25 | 27 | |
| | Total | 4 | 26 | 30 | |

Based on table 7, the pvalue = 0.039 is obtained, where the Pvalue value is smaller than the Alpha value = 0.05, which states that H_a is accepted, namely that there is a relationship between the type of work the patient does and the level of HNP pain experienced.

DISCUSSION

The results of this study are in line with research on factors related to complaints of low back pain in fishermen in Batu Karas Village, Cijulang Pangandara District. The statistical test results showed $p= 0.214$, which means that age is not related to the incidence of lower back pain (low back pain) (6). Meanwhile, based on research entitled The Relationship between Age and Length of Work with Complaints of Lower Back Pain in Fishermen in Belawan II Village, it is stated that those aged ≥ 30 years are very at risk of suffering from complaints of lower back pain because as a person ages, the body's muscle strength decreases (7).

This research is in line with research entitled The Relationship between Risk Factors and the Incidence of Lower Back Pain in PT X Employees During the COVID-19 Pandemic. Based on tests of the relationship between low back pain and gender, it was found that there was no significant relationship between low back pain experienced by women and men (8). However, this research is not in line with research entitled Factors Associated with Complaints of Low Back Pain (NPB) in

Workers at PT. Bakrie Metal Industrie, where it was found that there was a significant relationship between gender and complaints of lower back pain in workers at PT. Bakrie Metal Industries (9).

Humans are required to work to fulfill their lives, but there is no work that does not have risks when carrying it out. These health risks are no exception to lower back pain, and quite a few jobs can cause symptoms of lower back pain if they are not carried out properly. One of the jobs that causes lower back pain is batik making workers. The batik production process is carried out from sitting, standing, lifting, etc., and if it is not done correctly according to Ergonomic principles it can cause complaints of lower back pain in craftsmen (10).

This research is in line with research which states that there is a relationship between work posture and the incidence of low back pain. The majority of these workers have a high risk of working posture after REBA calculations were carried out for each respondent, this is what triggers LBP symptoms, unergonomic working postures are also carried out for a long time (11). Based on research entitled Comparison of the incidence of low back pain in suun workers and sand lifting workers. There is a significant strong positive correlation between work as a sand lifting worker and the incidence of LBP, with a significant low positive correlation between the younger age group and the incidence of LBP (12).

According to the researchers' assumptions, the pain experienced by HNP patients is on average at the same level, not affected by the age and gender of the patient. This is different with the type of work, if the patient often does physical work, the patient's pain will become more severe because there is always pressure on the part of the nucleus pulposus that has been pinched. There are still many factors

that will influence the pain level of patients with HNP.

CONCLUSION

Based on the results of research using the chi square test, it was found that gender characteristics and age characteristics were not related to the level of pain in HNP patients with p value = 1.000 & 0.272. Job characteristics are related to the pain level of HNP patients with p value = 0.039. Based on the results of this research, it is hoped that health workers can provide education to the adult population about preventing the incidence of HNP disease, to reduce the incidence of HNP disease in the city of Pekanbaru.

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