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FEATURES OF RISK FACTORS FOR PATIENTS WITH LOW BACK PAIN AMONG CIREBON CITY SECRETARIAL STAFF

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Abstract **--- Low Back Pain (LBP) refers to lower back pain that originates from the lower back region's spine, muscles, nerves, or other surrounding body parts. World Health Organization (WHO) statistics indicate that 619 million individuals suffered from low back pain in 2020, and that number is expected to rise to 843 million instances by 2030. Low back pain is a medical condition that can arise in a variety of occupations. Risk factors for LBP include smoking, obesity, poor posture, ergonomics, and high levels of physical stress at work. The aim of this study was to examine the risk factors in LBP patients. The method used in this research was descriptive with total sampling, the risk factors assessed included the parameters of age, sitting position, sitting duration, exercise frequency, body mass index. The results of the study were obtained in 39 low back pain The findings showed that most of the respondents were in their early adult years (50.0%), that they sat for long periods of time (24 employees, 61.5%), that they exercised occasionally (27 employees, 69.2%), and that they sat upright most of the time (26 employees, 66.7%). The Cirebon City Regional Secretariat has seven employees (17.9%) in the overweight category, eight employees (20.5%) in the obese category, and nine employees (23.1%) in the obesity category. In conclusion, 39 employees with low back pain engage in sitting activities that are typically prolonged (24 employees, or 61.5%), exercise frequently (27 employees, or 69.2%), and sit primarily upright (26 employees, or 66.7%). Additionally, 7 employees (17.9%) have an overweight BMI, 8 employees (20.5%) have an obesity BMI, and 9 employees (23.1%) have an obesity 2 BMI.**

Keyword – ***Low Back Pain; Age; Body Mass Index; sitting position; sitting duration***

I. INTRODUCTION

Low back pain is a picture of pain between the lower edge of the ribs and the buttocks. This might occur quickly (acute), gradually (subacute), or over an extended period of time (chronic). Anyone, from kids and teenagers to adults and the elderly, can suffer from low back discomfort.[1,2] There are two categories of risk factors for low back pain: specific and non-specific. While smoking, obesity, poor levels of physical activity, ergonomics, and high levels of physical stress at work are non-specific risk factors for low back pain, specific risk factors are caused by underlying diseases like cancer, tissue damage (fractures), or other underlying systemic diseases.[1,3] According to WHO data, 619 million individuals suffered from low back pain in 2020, and it is predicted that this number will rise to 843 million cases instances by 2050, primarily as a result of aging and population growth.

According to a 2020 study by Saputra, age variables may have an impact on the incidence of lower back pain (LBP) in workers due to muscle strain, frequent abrupt movements, and unstable body positions.[4] This occurs as a result of a decrease in fluids and a shift in tissue into scar tissue that occurs around the age of 30, which results in less stable bones and muscles. Incorrect posture and prolonged static sitting can lead to overuse of the body's muscles, which can result in pain and mechanical tension, particularly on the lower back muscles. The aim of this study was to examine the risk variables for LBP patients among Cirebon City Regional Secretariat staff members.[4]

II. METHOD

This research design uses descriptive cross-sectional study. The variables of this study is age, gender, exercise frequency, sitting position, and sitting duration with total sampling of low back pain cases at the Regional Secretariat of Cirebon City in May-June 2024. A total of 39 Employees who met the inclusion criteria were included: employees who suffer from low back pain aged 30-58 years and carry out work activities in a sitting position for ≥ 1 hour/day. In this research, Respondents will complete a questionnaire that includes inquiries on their work-related activities. The collected data were analyzed descriptively using frequency distribution tables.

III. RESULTS AND DISCUSSION

The results of this research showed that the number of low back pain patients who met the inclusion criteria was 39 people with 26 people (66.7 %) men and 13 people (33.3 %) women with examination results as in the table below.

TABLE I.

TABLE II. AGE AND EXERCISE FREQUENTLY

	Age			Exerice Frequently		
	26-35 years	36-45 years	46-55 years	Never	Occasionally	regularly
N (%)	19 (50%)	12 (31.6%)	8 (18.4%)	5 (12.8%)	27 (69.2%)	7 (17.9%)

According to the table, the majority of respondents (50%) are between the ages of 26 and 35. As people age, their muscle strength declines, making them more vulnerable to LBP. Age-related decreases in bone flexibility may also contribute to LBP complaints. Muscle strength declines by 25% between the ages of 40 and 60. This is because, starting at age 25, there is a decline in the quantity of muscle fibers.[5]

The category's greatest workout frequency, occasionally reaching 68.4%. How frequently a person participates in sports is referred to as their exercise frequency. A person's physical and mental health can improve with increased participation in sports, which can improve muscular function and lower the risk of disease.[5]

TABLE III. BODY MASS INDEX

	BODY MASS INDEX				
	Underweight	normal	overweight	obese 1	obese 2
N (%)	1 (2.6%)	14 (35.9%)	7 (17.9%)	8 (20.5%)	9 (23.1%)

BMI is mostly in the normal category of 35.9% with a BMI value of 18.5-22.9. A person with a normal or slim BMI will still have their center of gravity in the pelvis, no lumbar lordosis will occur, and the spine will experience steady pressure when under load. Strong bone and muscle mass in a person with a high BMI may help them avoid developing LBP.[6] Similarly, a person with a normal or low BMI may have weaker bone and muscle mass, which might lead to LBP complaints. Lifting heavier objects is typically possible for people with larger bodies. It is believed that if this is done correctly, there won't be any overstretching of the muscles, which can help prevent lower back pain.[6]

TABLE IV. SITTING POSITION AND SITTING DURATION

	SITTING POSITION			SITTING DURATION		
	Leaning	Bent	Upright	Short	Medium	Long
N (%)	5 (12.8%)	8 (20.5%)	26 (66.7%)	0	15 (38.5%)	24 (61.5%)

The Table III indicates that the majority of employees (26, or 66.7%) sit for extended periods of time (24, or 61.5%) and in an upright posture. Because low back pain is multifactorial and cannot be caused by a single factor, even if respondents work long hours sitting down, the risk of developing low back pain can be decreased if they do not sit in a static position. This is because muscles require less oxygen to function when in motion, which helps prevent fatigue and maintains the efficiency of energy transfer from the muscles to the skeletal tissue.[6,7]

IV. CONCLUSIONS

Based on the results of the study, it can be concluded that several factors contribute to the incidence of low back pain such as frequency of exercise, sitting position, and sitting duration.

Ergonomic interventions, such as adjustable workstations and scheduled movement breaks, are recommended to reduce LBP incidence. Future studies should explore the effectiveness of targeted workplace exercise programs and longitudinal assessments to determine causality. Limitations include the small sample size and reliance on self-reported data, which may introduce bias.

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