



THE RELATIONSHIP BETWEEN WORK POSITION AND COMPLAINTS OF LOW BACK PAIN AMONG NURSES IN THE INPATIENT INSTALLATION OF THE NATIONAL BRAIN CENTER HOSPITAL

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ABSTRACT

Low back pain (LBP) frequently occurs among nurses working in Inpatient Installations. 73.3% of LBP cases are exacerbated by non-ergonomic work positions. This study aims to determine the relationship between work position and complaints of LBP among nurses in the Inpatient Installation of the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta. This research employs a quantitative research design with a cross-sectional approach, involving 77 nurses in the Inpatient Installation of the National Brain Center Hospital. Data collection was carried out using questionnaires, and data analysis was conducted using the Spearman Rank correlation coefficient. The results of this study indicate a relationship between work position and complaints of LBP in the Inpatient Installation of the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta. The correlation test showed a significant relationship ($p\text{-value} = 0.023 < 0.05$) with a low correlation level ($r = 0.258$) and a positive correlation direction. It can be concluded that there is a relationship between work position and complaints of LBP among nurses in the Inpatient Installation of the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta. The lower the risk of musculoskeletal disorders due to work position, the lower the level of disability due to LBP complaints. Nurses need to adopt ergonomic work positions to minimize the risk of LBP complaints. Hospitals should provide training on ergonomic work positions for nurses, supply ergonomic work equipment, and maintain the health of nurses to minimize LBP complaints.

Keywords: low back pain; nurses; work position

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INTRODUCTION

Low back pain (LBP) is described as pain between the lower edge of the ribcage and the buttocks. This condition can last for a short period (acute), slightly longer (subacute), or for an extended period (chronic) (WHO, 2022). Approximately 619 million people, or one in three individuals worldwide, suffer from LBP, which is a leading cause of disability globally. LBP is a major public health concern and is often associated with a loss of work productivity (WHO, 2023). According to the findings of The Global Burden Disease Study, low back pain ranks fourth as a cause of disability after traffic accidents, HIV/AIDS, and ischemic heart disease, as measured by Disability Adjusted Life Years (DALY) (Vos et al., 2020). The highest prevalence of LBP is found in Hungary (95%), followed by the Czech Republic (88%) (List et al., 2023). The number of LBP sufferers in each province in Indonesia cannot be precisely determined; however, the overall prevalence is estimated to range between 7.6% to 37% (Kumbea et al., 2021). Based on research conducted by Jradi (2020), 4 out of 5 nurses in Saudi Arabia experience LBP, with ergonomic and psychosocial factors considered to be contributory.

Ergonomic and psychosocial factors are considered the main causes of LBP. According to research conducted by Asiri et al. (2024) titled "Prevalence and determinants of low back pain among residents in Abha City, Saudi Arabia," the most frequently reported factors aggravating LBP were working in uncomfortable positions (73.3%), standing for long periods (64.4%), and prolonged sitting sessions (51.5%). Low back pain not only results in prolonged discomfort but can also lead to activity impairment and lifelong disability. This condition diminishes the quality of nursing care provided by nurses and ultimately affects their quality of life and social interactions. Body position or posture is the attitude that describes how the body, head, arms, and legs are positioned both in relation to each other and their movement against gravity. The body position during work is highly determined by the type of job performed, with each work position exerting different influences on the body. There are several types of work positions (Hutabarat, 2017).

Based on a preliminary study conducted by the author, the phenomenon of LBP complaints was observed among fellow nurses in the author's ward. Of the 17 nurses in the Inpatient Installation on the 8th floor, 14 (82.3%) have experienced LBP complaints with varying durations. Most nurses chose to rest until the complaints subsided or used lumbar corsets while performing nursing actions for patients. Several colleagues have expressed a desire to move to different workstations due to LBP and back pain complaints that are becoming disruptive. Twelve nurses reported their work eligibility to the Nursing Department of the National Brain Center Hospital, requesting transfer to another ward with lighter work activities; of these twelve nurses, two with lighter work activities; of these twelve nurses, two have undergone surgical procedures after being diagnosed with Herniated Nucleus Pulposus (HNP). To investigate the correlation between work posture and complaints of low back pain (LBP) among nurses in the Inpatient Care Unit at the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta

METHOD

This study employs a quantitative research method with a cross-sectional design to analyze the relationship between the independent variable (work position) and the dependent variable (LBP complaints). The population in this study includes primary nurses and associate nurses in the Inpatient Installation at the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta (RS PON). The sample for this study is determined using purposive sampling, with the sample size calculated using the Slovin's formula. The research is conducted in the Inpatient Installation of the National Brain Center Hospital. The study period is from January to February 2025, with permissions obtained in January 2024. Data collection commenced in January 2025. The instruments used in this study are the Oswestry Disability Index questionnaire to assess LBP complaints based on the level of disability and the Rapid Entire Body Assessment (REBA) worksheet to evaluate work positions. Data analysis begins after all required data are collected. Prior to data processing, editing and coding are performed on the collected questionnaires. The data are then processed using a computer program, following the stages of data presentation and analysis preparation as follows: univariate analysis aims to obtain the frequency distribution between dependent and independent variables. To examine the relationship between independent and dependent variables in the context of hypothesis testing, Spearman's rank correlation test (ρ) is used to determine the relationship between work position and LBP complaints.

RESULT

Univariate Analysis

Table 1 shows that the majority of respondents perform work positions with negligible ergonomic musculoskeletal disorder risk, totaling 56 respondents (72.7%). Work positions with low risk account for 20 respondents (26.0%), moderate risk positions involve 1 respondent (1.3%), and there are no respondents performing work positions with high or very high risk.

Table 2 indicates that 63 respondents (81.8%) experience moderate disability in their daily activities related to LBP complaints, 12 respondents (15.6%) experience mild disability, and 2 respondents (1.2%) experience severe disability in their daily activities.

Bivariate Analysis

The bivariate analysis was conducted to determine the relationship between work position and LBP complaints using Spearman's rank correlation test (ρ).

Table 3 shows a p-value of 0.023 (≤ 0.05), and the correlation coefficient between variables is 0.258. Therefore, it can be concluded that there is a relationship between work position and LBP complaints among nurses in the Inpatient Installation of the National Brain Center Hospital, with a low correlation level (correlation coefficient = 0.258) and a positive relationship direction.

DISCUSSION

Work Position

The results of the study show that respondents perform work positions with negligible ergonomic musculoskeletal disorder risk, totaling 56 respondents (72.7%). Work positions with low risk account for 20 respondents (26.0%), moderate risk positions involve 1 respondent (1.3%), and there are no respondents performing work positions with high or very high risk. These findings are consistent with the research conducted by Rahayu (2024) on inpatient nurses, which involved 36 nurses, where 25 (69.4%) nurses performed work positions categorized as low-risk. The Calista Roy Nursing Model, known as the adaptation model, views every human being as having the potential to adapt to stimuli, whether internal or external, and this adaptive capacity can be observed at various stages of life (Munandar, 2020). The Roy Adaptation Model (RAM) by Callista Roy can be applied to nurses' work positions, focusing on how individuals adapt to their work environment to enhance their physical and psychosocial well-being. Roy's model emphasizes the importance of individual adaptation to environmental stressors, including ergonomic factors that can affect the physical and mental health of nurses. By applying the Roy model in the context of ergonomic work, individuals can more easily adapt to the physical and social environment at work, leading to improved work quality and overall health of nurses (Marudhar, M., & Josfeena, J, 2019).

The researcher believes that most nurses have implemented ergonomic principles in their work; however, some nurses still have not applied these principles. When transporting patients in bed, nurses often lift patients weighing between 40-100 kg. According to ergonomic theory, the work posture involved in carrying heavy loads significantly impacts the workload on the body, which is supported by tissues, particularly the spinal system (Navisah, B. I., Widiasi, D. E., & Sulistyowati, E, 2022). The author believes that non-ergonomic work positions among inpatient nurses are due to the high responsibility of their nursing care duties.

Low Back Pain Complaints

The results of this study indicate that 63 respondents (81.8%) experience moderate disability in their daily activities related to LBP complaints, and 2 respondents (1.2%) experience severe disability in their daily activities. These findings are consistent with research conducted by Rahayu (2024) on 36 inpatient nurses, where 14 (66.7%) nurses experienced moderate

disability. The researcher believes that LBP complaints among nurses are also related to the weight of patients who need care in the inpatient installation of the National Brain Center Hospital. Additionally, most patients have motor weakness or decreased consciousness, resulting in moderate to complete dependency. This situation causes nurses to exert more effort in caring for patients. Furthermore, most nurses in the inpatient installation are female, who generally have less physical strength compared to males. The nurse-to-patient ratio of 1:5 compels nurses to complete their tasks within one shift as quickly as possible, often neglecting ergonomic hazards such as LBP that they may experience.

Bivariate Analysis

The Relationship Between Work Position and LBP Complaints

The results of the Spearman's rank correlation test (ρ) show that the p-value is 0.023 (≤ 0.05), indicating that the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. Thus, it is concluded that there is a correlation between work position and LBP complaints, with a correlation coefficient of 0.258, meaning there is a significant relationship between work position and LBP complaints with a very low correlation level, and the direction of the relationship is positive. This implies that the lower the risk of musculoskeletal disorders due to work position, the lower the level of disability due to LBP complaints. This finding is consistent with research conducted by Anggreni (2022), which states that there is a significant relationship between work position and low back pain complaints among anesthesiologists. The study found that the higher the risk posed by the work position of an anesthesiologist, the higher the complaints of low back pain experienced, with a significance level ($r = 0.025$), p -value = 0.001 (<0.05), and a correlation coefficient of 0.219.

The Relationship Between Work Position and LBP Complaints (continued)

The researcher believes that non-ergonomic work positions among inpatient nurses are due to the high responsibility of nursing care for patients with neurological disorders, particularly the task of lifting patients from the bed, which is performed daily and continuously. The characteristics of patients at the National Brain Center Hospital (RSPON), who mostly experience physical mobility impairments and have moderate to complete dependency, as well as patients whose mobility is intentionally restricted, necessitate nurses to consistently assist patients during bed mobilization, including moving patients upward. This consideration is crucial for reducing the risk of LBP complaints. Therefore, inpatient nurses need to pay more attention to the risks associated with work positions during nursing care, especially when lifting patients from the bed, to prevent LBP complaints among nurses in the inpatient installation of the National Brain Center Hospital.

CONCLUSION

The results of this study indicate that there is a significant relationship between work position and low back pain (LBP) complaints among nurses in the Inpatient Installation of the National Brain Center Hospital Prof. Dr. dr. Mahar Mardjono Jakarta

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