**ORIGINAL ARTICLES**

# RELATIONSHIP BETWEEN CONATION AND NURSE ERGONOMIC BEHAVIOR IN PREVENTION OF LOW BACK PAIN

**Dinda Nur Fajri Hidayati Bunga[1], Joni Haryanto[2], Abu Bakar[3]**

**Faculty of Nursing, Universitas Airlangga, Surabaya**
**Correspondence: dindanfhbunga@gmail.com**

**Abstract**

An awkward posture is the most common and significant factor of Low back pain among nurses. Nurses are often exposed to ergonomic constraints. The study aimed to examine the correlation between the conation with nurse ergonomics behavior in preventing low back pain. This study was an explanatory observational research design using a cross-sectional study. A total of 106 nurses were recruited using a probability sampling method through a simple random sampling technique. Data analysis was performed and presented in descriptive statistics, and significant findings were computed using the chi-square test. The results showed that there is a significant correlation between the conation with nurse ergonomic behavior in preventing low back pain events. Ergonomic behavior is essential for nurses to avoid low back pain. Ergonomic behavior will be formed if a nurse has the intention or conation to do a practice. Intention or conation can be formed from attitudes toward behavior, subjective norms, and perceptions of control.

**Keywords:** Conation, Intention, Ergonomic, Behavior, Low back pain.

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## Introduction

Low back pain (LBP) is a musculoskeletal disorder felt by health workers, especially nurses in hospitals (1,2). Nurses have been identified as the second most at risk of experiencing LBP after industrial workers (1,3). Nurses are also often defined as jobs exposed to risk factors related to ergonomic constraints due to a lack of information related to the principles of ergonomics (4-5).

The prevalence of LBP among nurses achieved 70% per year, with a lifetime prevalence of around 35 to 80% and recurrence rates exceeding 70% (3). Various studies show that LBP prevalence in nurses includes 78% of nurses in Nigeria (6) and 77.4% of nurses in China experiencing LBP (7). The incidence of hospital nurses in Iran who experience LBP is 30-60% (2). A study conducted in Switzerland found that the prevalence of LBP in 1 year among health workers was 67.3%, of which nurses were in the first place at 75.6% (8). In contrast, in Korea, 90.3% of intensive care nurses experienced LBP at least once a month, and only about 18.3% of nurses went for treatment (9). The prevalence of nurses who experienced LBP in Jordan was 83.6%. As much as 40% agreed that LBP

increased absenteeism at work, 58.7% said LBP could reduce work productivity, and 9% of nurses reported having to change work units (10).

The MDGs in 2010 noted that in Indonesia, nurses had musculoskeletal disorders, namely the highest LBP. There are 27,020 cases, equivalent to the incidence or incidence rate (IR) of 249 per 10,000 workers, seven times higher than all industrial sectors. As many as 65% of nurses at the Fatmawati Hospital in Jakarta diagnosed with LBP, and medical records at Prikasih Hospital from January to December 2010 noted that nurses who experienced LBP were 59 people (34.7%). The results of the 2004 Cropcord Indonesia study showed that the prevalence of LBP patients in men was 18.2%, and women were 13.6% (11). Besides that, Nawawenitu, Hidayat, and Widajati reported the percentage of nurses who had experienced low back pain in Dr. Soetomo Surabaya at 45.5% (12).

Nurses have a high risk of experiencing LBP. Some of the most commonly reported LBP risk factors include heavy physical work, frequent bending, twisting, lifting, pulling and pushing, repetition work, static position, and vibration while the nurse's duty to provide nursing care to patients cannot be separated from those activities affecting the lower back of the nurse can cause injury and cause pain (1,2). This reflects the ergonomic behavior of nurses. A person will behave if based on intention or conation (13).

Skinner and Jones (1939) define behavior as a response or a person's reaction to a stimulus (external stimulation). Stimulus obtained by a person can come from within the early (internal stimulus) or stimulus that comes from outside (external stimulus). The material object is a human whose soul includes components such as cognition, affection, and conation. Conation is a component of attitude in the form of a person's readiness to behave about the object of a person's attitude or tendency to perform a behavior. Organisms produce certain behaviors if there are certain stimulus conditions as well, the effects of which are specific reactions to particular stimuli so that one can expect and estimate one's behavior (14). Based on the description, it is necessary to develop a relationship between conation and nurse ergonomics behavior in the prevention of low back pain.

## Objectives

The study aimed at examining the relationship between the conation with nurse ergonomics behavior in preventing low back pain.

## Methods

### *Research design*

The crossectional study design was applied in this study to determine the relationship between conation with nurse ergonomics behavior in preventing low back pain.

### *Setting, samples, sampling technique*

Sampling in this study was carried out by a probability sampling method through a simple random sampling technique. The research sample was taken based on the number of nurses who met the inclusion criteria. The researcher used the criteria in selecting samples, namely: IRD nurse (ER, ICU, and Operation Room) Dr. Soetomo Hospital, Surabaya, having work experience of at least one year. Exclusion Criteria: Taking leave, being sick until not entering work, having to recover, or spinal abnormalities. A total of 106 nurses agreed in this study.

### *Instruments*

Two main instruments were used in this study to assess the information from respondents. The instrument of conation was modified from the original questionnaire of the Theory of Planned Behavior by Ajzen (13). Whereas, an instrument for ergonomic behavior was developed by the researcher with a research reference from Ergonomic: The Study of Work by U.S Department of Labor (15). All the instruments have been tested for validity and reliability.

### *Ethical consideration*

The research ethics committee approved this study of Dr. Soetomo Hospital, Surabaya, with the number of ethical approval was 1219/KEPK/V/2019. All respondents were informed about the purpose of the study and agreed to their participation in this study.

### *Data analysis*

A percentage was used to describe the frequency of the conation among respondents. The test was used to examine the relationship between conation and ergonomic behavior among nurses to prevent Low Back Pain. The significance level was $\alpha < 0.05$.

## Results

### Frequency of the conation among respondents

Table 1 showed the rate of conation in among respondents. The results showed that 61.3% of respondents were a moderate level of conation. Only 30.2% of respondents indicated the right level of conation. A detailed explanation was summarized in table 1.

Table 1 *Frequency of the Conation in Dr. Soetomo Hospital, Surabaya*

| Conation | Frequency | Percent |
|---|---|---|
| Good | 32 | 30.2% |
| Moderate | 65 | 61.3% |
| Low | 9 | 8.5% |
| Total | 106 | 100% |

### Frequency of Ergonomic Behavior to prevent Low back pain

Table 2 showed the frequency ergonomic behavior among nurses to avoid low back pain. The finding showed that most nurses have a moderate level of ergonomic behavior to prevent low back pain (61.3%). Only 27.4% of nurses have the right level of ergonomic behaviors. A detailed explanation was summarized in table 2

Table 2. Frequency of nurse ergonomic behavior to prevent Low back pain

| Ergonomic Behavior | Frequency | Percent |
|---|---|---|
| Good | 29 | 27.4% |
| Moderate | 65 | 61.3% |
| Low | 12 | 11.3% |
| Total | 106 | 100% |

**Relationship between conation and ergonomic behavior among nurses to prevent Low Back Pain**

Table 3 showed the relationship between conation and ergonomic behavior among nurses to avoid low back pain. The findings explained that there is a relationship between the conation with nurse ergonomic behavior to avoid low back pain among nurses in Dr. Hospital. Soetomo Surabaya with p value<0.05. A detailed explanation was summarized in table 3.

Table 3. Relationship between conation and ergonomic behavior among nurses to prevent Low Back Pain

| Conation | Ergonomic Behavior | | | Total | P-*Value* |
|---|---|---|---|---|---|
| | Good | Moderate | Low | | |
| Good | 13<br>40,6% | 13<br>40,6% | 6<br>18,6% | 32<br>100 % | 0,049 |
| Moderate | 13<br>20,0% | 46<br>70,8% | 6<br>9,2% | 65<br>100% | |
| Low | 3<br>33,3% | 6<br>66,7% | 0<br>0,0% | 9<br>100% | |
| Total | 29<br>27,4% | 65<br>61,3% | 12<br>11,3% | 106<br>100% | |

**Discussion**

The results showed that from 106 respondents, most of them (61.3%) had moderate conation as large as nurse ergonomic behavior to prevent low back pain. Their conation of nurses includes attitudes toward ergonomic behavior, subjective norms, and perceptions of behavioral control. Ergonomic behavior that is indicated by enough nurses who position the body or spine is not with a good body position.

This is supported by the previous study mentioned that attitudes, perceived behavioral control, and subjective norms were associated with intention or conation of behavior among the younger generation (16). Besides, work postures or non-ergonomic work attitudes are very susceptible to musculoskeletal disorders (17).

Low back pain needs to be a concern by nurses since their activities are easily exposed. Prevention to prevent low back pain is a crucial point by adequate rest, regular positioning of the body accurately during working time, modify work environment, and perform stretches.

This study focused on the emergency room, ICU, and operation room. It was not necessary to have the same impact as another area. Further research is needed for other areas of the hospital. The finding of this study is the importance of preventing low back pain by applying ergonomic behavior. It can be reduced occupational health problems, and the nurse could do their job efficiently. But the application of new behavior is certainly not easy because behavior is not formed overnight. It takes time to form behavior for someone.

**Conclusion**

The study concluded that ergonomic behavior is essential for nurses to prevent low back pain. Ergonomic behavior will be formed if a nurse has the intention or conation to do a behavior.

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