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## ORIGINAL ARTICLE

### THE ASSOCIATION BETWEEN KNOWLEDGE AND PRACTICE OF BODY MECHANIC TECHNIQUE AMONG NURSES IN EMERGENCY DEPARTMENT FROM HOSPITAL IN NORTH BORNEO

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#### ABSTRACT

**Introduction:** Body Mechanic Technique (BMT) is a method of moving throughout daily activities, and good body mechanics can help you avoid injury and lower back pain. The aim of this study is to identify the level of knowledge and level of practice among nurses in Emergency Department, Hospital in North Borneo, Sabah regarding Body Mechanic Technique and their relationship. **Method:** A descriptive cross-sectional study was conducted on 40 staff nurses from Emergency Department, Hospital in North Borneo. Data was collected using validated questionnaire with 15 minutes to timeframe to answer all questions. Data then was analysed using descriptive statistics and Pearson Correlation Coefficient, aided with IBM's Statistical Package for the Social Science (SPSS) Version 25 statistic software. **Result:** From this study, it is revealed that majority of the respondents had fair level of knowledge (77.5%) and majority of respondents had good level of practice (55%) regarding BMT. The study also revealed that there is weak correlation between level of knowledge and level of practice regarding BWT, as the Pearson Correlation Test indicates that p value is 0.128. **Conclusion:** Overall, the level of knowledge and practice regarding BMT among in nurses in ED Hospital in North Borneo are generally fair and there still opportunity for improvement to prevent occurrence low back pain and its complication in the future.

**Keywords:** Knowledge; Practices; Low Back Pain; Nurses; Body mechanic technique

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## INTRODUCTION

Nursing is regarded as a job that is both caring and difficult. Nurses nowadays must deal with a wide range of situations, from simple to complex. This increased competitiveness and job demand put physical and psychological strain on nurses, as well as a significant risk of occupational health problems such as musculoskeletal disorders. According to Cheila et al. (2012)<sup>6</sup>, nurses develop their activities in a variety of settings, including hospitals, and on a continuous basis, requiring continual concentration, physical exertion, insufficient positions, repetitive movements, and weight lifting, all of which predispose them to work-related disease. As a result, they are exposed to a number of occupational risk factors on a daily basis. Nurses' jobs are stressful every day because of the tremendous psycho-emotional weight imposed by the nurse-patient relationship, physical demands, labour shortages, extended shifts, poor working environment, and limited decision-making capacity.

According to Al-Eisa, E., & Al-Abbad, H. (2013)<sup>4</sup> nurses, for example, are among the health-care workers who are susceptible to lower back pain. The prevalence of lower back pain among nurses ranged from 50 percent to 90 percent. Because of the frequent need to lift or transport patients, who may move quickly and perform repetitive procedures with inappropriate body position, lower back discomfort develops. Musculoskeletal issues such as acute lumbosacral strain, unstable lumbosacral ligaments and weak muscles, incorrect postures, unneeded strain and tiredness of back muscles are the most common causes of low backache. Back pain is a diverse health concern that poses exciting

difficulties for health care providers such as nurses. Back discomfort has an impact on a person's physical, psychological, emotional, economical, and social well-being. The coordinated effort of the musculoskeletal and neurological systems to maintain balance, posture, and body alignment while lifting, bending, moving, and executing activities of daily living is known as body mechanics. The use of good body mechanics can lessen the chance of musculoskeletal system injury while simultaneously facilitating body movement, allowing for physical mobility without causing muscular strain or excessive use of muscle energy. (Aditi et.al., 2017)<sup>2</sup>.

According Jaafar and Ghazali (2014)<sup>7</sup> the phrase "body mechanics" is used to describe how people move in their daily lives. It covers how to sit, stand, lift, carry, bend, and sleep, among other things. Back problems, on the other hand, are frequently caused by poor body mechanics. When people do not move effectively and safely, excessive forces are placed on the spine, which can lead to degeneration of spinal components such as discs and joints, injury, and unnecessary wear and strain over time. That is why it is critical to understand the fundamentals of proper body mechanics. Proper body mechanics are critical for maintaining the health of our spine. It's also simple to apply these principles in our daily lives. It may seem strange at first, but if we stick with it, they will become second nature, and our backs will reward us.

**Problem statement:** Nursing is a demanding career that needs frequent back bends, arm and leg flexing, as well as pushing, pulling, carrying, and lifting during patient care duties. Long-term performance of these motions, as well as the usage of improper

muscles to complete a task, can result in severe musculoskeletal strains and tiredness, as well as an increased risk of injury to the patients. Proper body mechanics should be employed consciously when undertaking physical activities to avoid these issues (Sharifah, 2017)<sup>11</sup>. Wanless (2016)<sup>13</sup> in a comprehensive evaluation of twelve studies on patient moving and handling, researchers discovered that a technique-driven training programme had no effect on moving and handling culture or injury statistics. Moving and managing patients necessitates the movement of large loads, which has been linked to the development of lower back discomfort in studies. Low back pain and lower back injuries are the most common musculoskeletal issues caused by moving and handling among nurses, which is unsurprising.

Nurses are typically required to work in an upright position for extended periods of time, handle medical devices, and transfer patients based on their level of consciousness. All of these jobs demand the application of the body mechanics concept in order to avoid physical injury and actively employ the body while delivering nursing care (Jung and Suh, 2013)<sup>8</sup>. According to Unison (2013)<sup>12</sup> prior estimates, roughly 3,600 healthcare workers, including nurses, will have to retire every year owing to crippling back injuries caused by poor posture and movement, according to one of the UK's largest trade unions that represents public sector workers. Poor posture can cause lower back problems in approximately 80% of the population at some point in their lives. Over a quarter of reported health-care worker injuries are connected to movement and handling of patients and inanimate items. Back and over 80% of all back and shoulder injuries are caused by handling and transporting patients,

according to the Bureau of Labor Statistics. Overexertion from lifting, tugging, pushing, carrying, and turning motions accounts for over 80% of all injuries. Over 6,6500 injuries have been documented among nurses, resulting in days absent from work. This revealed that nurses who worked in a clinical setting had more low back pain than other types of health workers. As a result, nurses must understand and practice good body mechanics when transferring a patient to limit the chance of damage (Chan, 2017)<sup>5</sup>.

**Objective:** To determine the association between level of knowledge and level of practice in body mechanic technique among nurses in Emergency Department Hospital in Northern Borneo.

## METHODOLOGY

This is a quantitative, convenience sampling, descriptive cross-sectional study design, the study was conducted at Emergency and Trauma Department Hospital in Northern Borneo. The sample was nurses who work in ED as total number of nurses in ED is 45, hence the sample size or number of respondents required for this study is 40 (N=40) respondents. The inclusion criteria for this study is registered nurses work in hospital's Emergency Department and have work experience of one year and above. Exclusion criteria were nurses on leave such as annual leave, study leave, confinement leave and also the nurses who not willing to participate in this study. IBM Statistical Package for Social Science Version 25 (SPSS) was used to analyzed the data.

The data was collected using questionnaire "Knowledge and Practice of Nurses about Body Mechanic Technique" adapted from Shamin,

A., et.al.(2017)<sup>10</sup>. The questionnaire consists 3 sections. Section A is demographics data which includes age, gender, marital status, working experience and education level. Section B consists of 15 questions on knowledge among nurses regarding BMT. Section C involves 8 questions on nurse's practices with regards to BMT. All Section B questions are scored using Likert Scale. Of which 1 mark = strongly disagree, 2 marks = disagree, 3 marks = neutral, 4 marks = agree and 5 marks = strongly agree. All Section C questions also score using Likert Scale, of which 1 mark = never, 2 marks =

seldom, 3 marks = Sometimes, 4 marks = often and 5 marks = Always.

Level of knowledge will categorize into three categories i.e. good fair and poor. According to Aboalzim et al (2016)<sup>1</sup> stated that total score less than 50% signifies poor knowledge, 50%-75% is fair knowledge and total score 76% and above signifies good knowledge. For the level of practice, according to Aboalzim et al (2016)<sup>1</sup> stated that score 60% and above signifies that respondents have good practice regarding BMT whereas score less than 60% signifies that respondents have a poor practice on BMT.

### Pilot Study:

Cronbach's Alpha	Cronbach's Alpha Based on
Standardized Items	
0.772	0.715

**Table 1** Cronbach's alpha calculated in Pilot study

Pilot study has been conducted to assess the reliability of the questionnaire. The sample size of this pilot study need 10% from real study (10 respondents). From the pilot study that has been done, the Cronbach's alpha calculated is 0.772. A Cronbach  $\alpha > 0.7$  indicates that pilot study conducted is reliable. With this, we can conclude that the pilot study shows the questionnaire is reliable and study can be proceeded.

### RESULT

A total of 40 questionnaires were returned which gave a response rate of 100%. Out of the 40 participants in the study, 17.5% (7 respondents) are male and 82.5% (33 respondents) are female participants. Most of respondents married (55%) and belong to age group below 30 years old (55%). The majority of them, 30 out of 40 respondents, have 1 to 10 years' working experience. The highest education level among the respondents is degree level (17.5%), while most of the respondents are diploma holders (82.5%).

**Association between level of knowledge and level of Practice**

	Score Knowledge	Score Practice
Pearson Correlation	1	
Score Knowledge Sig. (2-tailed)	0.128	-0.245
N	40	40

**Table 2** Statistical Hypotheses Test for Variables Correlation

Table 2 shows result of statistical hypotheses test from two sets of variables i.e. level of knowledge and level of practice. The end result of statistical test is a “p-value”, where “p”

indicates probability of observing differences between the variables. Meanwhile, significance limit is set at 0.05. In other words, the correlation between the level of knowledge and level of practice was considered true / significant if the “p-value” is less than 0.05. This study found that the Pearson correlation coefficient (r) which measure the -0.245. In other words, the correlation coefficient  $r = -0.245$  show a very weak and negative correlation between level of knowledge and level of practice. Moreover, the p value calculated is 0.128 which is more than 0.05. From these finding, it can be concluded that there is no significant correlation between respondents' level of knowledge and level of practice.

**Ethical clearance:** Ethical clearance was obtained from the National Medical Research Register. National Medical Research Register (NMRR) was a web-based service initiated by National Institutes of Health (NIH) of the Ministry of Health (MOH) National Institutes of Health (NIH) of the Ministry of Health (MOH), also from OUM ethic committee and written

approval dated 17<sup>th</sup> Sept 2019 from Head of Emergency Department.

**Conflicts of Interest:** There is no conflict of interest in this study.

**Fund for the study:** This is self-funded study.

**DISCUSSION**

This study discovered that the Pearson Link Coefficient (r) = -0.245 indicates a very poor correlation between knowledge and practice, with a p-value of 0.128. This is in contrast to Sharifah, K., (2017)<sup>11</sup>, who reported a p value of 0.000 and concluded that there is a substantial relationship between these two factors. Sebastian and Ramya (2013)<sup>9</sup>, conducted a study in Spain to determine the usefulness of the body mechanic checklist tool.

Their findings demonstrated that adding body mechanics technique information to nurses' knowledge led to a decrease in musculoskeletal injuries and an increase in body mechanics technique practices. It contradicts with the finding in this study which can be concluded that correlation is negative and not significant. Abolfotouh, S. M.et al (2015)<sup>2</sup> suggested preventive actions to be implemented, as participating in educational programs that

teach good body mechanics, in order to lessen the likelihood of lower back discomfort, yet most studies found nurses do have high knowledge about body mechanic.

Body mechanic technique is acknowledged as one of the effective way to reduce amount of incident low back pain. Low back pain can also be avoided by maintaining a well-balanced emotional and physical life by not acquiring excessive weight, quitting smoking, eating a good diet, and exercising regularly. Every hospital should adopt a multi-pronged approach to deal with low back pain among nurses, according to the report. In addition to health promotion, every large hospital should have an effective monitoring system in place, as well as capabilities for quick reaction and treatment of low back pain.

### COCLUSION

Body mechanic technique is acknowledged as one of the effective way to reduce amount of incident low back pain. Maintaining a well-balanced emotional and physical life by not gaining excessive weight, not smoking, following healthy diet and exercise habits are also effective in protection of low back pain. Besides health promotion, an adequate surveillance mechanism should be set up in every large hospital and also, facilities for prompt response and treatment of low back pain should be provided.

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