Ergonomics and Work Related Stress Among Staff Nurses

Thesis

Submitted for Partial Fulfillment of Master Degree in Nursing Sciences (Nursing Administration)

By

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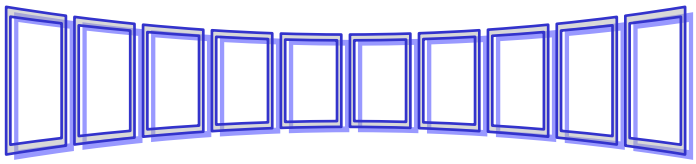

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Ergonomics and Work Related Stress Among Staff Nurses

Abstract

Background: The benefits of ergonomics in nursing include increasing of the quality of nursing care, decreasing nursing shortage, and staff burnout. **Aim of the study**: assessing the relationship between ergonomics and work-related stress among staff nurses. **Subjects and methods:** The study was conducted at Menouf Fevers Hospital using a descriptive correlational design on all 140 staff nurses in the setting. Data was collected using a self-administered questionnaire including an ergonomics questionnaire and a work-related stress rating scale. **Results:** Nurses' age was mostly 20 to less than 25 years (41.4%), with a majority of females (89.3%), with diploma degree (81.4%). Only 17.9% of the nurses considered their workplace as ergonomically adequate, and the majority had high total stress (84.3%). The areas of highest stress the disagreement among nurses (90.7%), conflict with physicians (92.9%), and lack of support from leadership (93.6%), whereas the least stressful were those of nurse capability (28.6%) and dealing with dying patient (47.9%). A significant negative correlation was found between staff nurses' scores of adequacy of ergonomics and work related stress. In multivariate analysis, male gender and nursing qualification were negative predictors of the score of adequacy of ergonomics, while the ergonomics adequacy score was a negative predictor of the stress score. **Conclusion** and **recommendations:** The ergonomics adequacy score is a negative predictor of the stress score. The study recommends training in ergonomics, and stress management programs, with intervention studies to investigate the effectiveness of improving workplace ergonomics on nurses' job stress and productivity.

Keywords: Ergonomics, Staff Nurses, Work-related stress

INTRODUCTION

Ergonomics is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design to optimize human well-being and overall system performance ***(Zakerian et al., 2013)***. It is the science of fitting the job to the worker ***(International Ergonomics Association [IEA], 2013)***. The scientific discipline of ergonomics focuses on understanding those human factors and on designing systems and equipment that optimize human wellbeing and overall performance to prevent injury ***(International Ergonomics Association [IEA], 2000)***.

Ergonomic injuries are injuries caused by exposure to ergonomic risk factors, such as repetitive strain, prolonged exposure to abnormal temperatures or vibration, prolonged awkward posture, or forceful exertion or pressure upon a particular body part. These injuries result from tasks that are not particularly harmful when exposure to the risk factor is only short term. The risk of an ergonomic injury increases with the length of exposure to the risk factor, as does the potential severity of the risk. Nursing is ranked as one of the occupations with the most incidences of workplace-related injury and illness ***(King, 2011)***.

Nursing work involves risky activities with highly prevalent of musculoskeletal complaints ***(Carneiro et al., 2012)***. The most vulnerable anatomical site of Work-Related Musculoskeletal Disorders (WMSD) are the vertebral column, followed by shoulders, neck, knee, ankles/feet, wrist, thighs and elbow ***(Choobineh et al., 2010; Daraiseh et al., 2010)***. Many factors in the work environment could contribute to nurses' exposure to physical hazards and musculoskeletal disorder. These include physical demands of the nursing work as bending and twisting; and physical demands of nurse-patient interaction as turning, bathing, dressing, seating the patient in the bed and/or chair and transferring the patient ***(Yang et al., 2012; Thinkhamrop et al., 2017)***.

Stress is a pervasive and insidious part of everyday life and in the work environment ***(Al-Makhaita et al., 2014)***. Job stress is defined as *"the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, responses, or needs of the worker"* ***(Al-Hawajreh, 2011)***. Work-related stress (WRS) is simply stress caused or made worse by working ***(Healy and Tyrrell, 2011)***. In small doses, it can help the person perform under pressure and motivate him/her to do the best as it recognizes how the body endeavors to

maintain a relatively constant internal state in an everchanging environment ***(Smith et al., 2012)***. However, excess amounts of stress can lead to a lack of productivity, less of confidence and inability to perform routine tasks, as a result employee lose their enthusiasm for their work and eventually withdraw from the company ***(Malkolm, 2012).***

Meanwhile, stress is an experience of being overwhelmed that can be either negatively or positively valued by the worker. When it is negatively valued, job satisfaction goes down; but when it is positively valued, stress may even improve job satisfaction ***(Barnett et al., 2016)***. Stress occurs when one is faced with events or encounters that he/she perceives as an endangerment to his/her psychological or physical wellbeing ***(Kamal et al., 2012)***.

Exposure to occupational stressors may affect soft tissues resulting in musculoskeletal pains with non-traumatic origin ***(Azma et al., 2015)***. Musculoskeletal disorders research, grounded in work environment contexts, has been firmly established as an area of research in recent years ***(Herin et al., 2011; Arsalani et al., 2014)***. Evidence suggests that there may be multiple causes for musculoskeletal disorders. For instance, exposure to a

specific risk factor does not necessarily result in the development of a musculoskeletal symptom, and the full range of factors must be analyzed to understand and establish the cause the disorders ***(Markkanen et al., 2014; Ricco et al., 2016)***.

Significance of the study:

The analyses of the associations between occupational stressors and work-related musculoskeletal injury outcomes may help to recognize the components and propose corrected actions and prevention programs. This study is an attempt to contribute to the knowledge base by exploring the influence of work behavior and occupational risk factors on the development musculoskeletal complaints as perceived by nurses.

AIM OF THE STUDY

The aim of this study was to assess relationship between ergonomics and work-related stress among staff nurses through:

1- Determining ergonomics among staff nurses

2- Assessing work related stress among staff nurses

3- Finding out relationship between ergonomics and work related stress

Research question

Is there a relationship between ergonomics and work-related stress among staff nurses?

REVIEW OF LITERATURE

ERGONOMICS

Using ergonomics science and evaluating people, job, equipment features and their workplace, and the interaction between these factors can help to designing working systems with adequate safety and high efficiency and productivity and thereby reduce the causes of accidents and muscular-skeletal injuries in staff and lead to health promotion and enhance productivity and performance in them ***(Das Malhi et al., 2016)***.

The term "ergonomics" was coined after World War II by a group of physical and biological scientists in the United Kingdom to describe their activities which had emerged to meet the problems created by wartime technology. Ergonomics, or human factors, as it is sometimes called, is an interdisciplinary field concerned with the performance of humans at work, how they cope with the working environment, interact with machines, and, in general, negotiate their work surroundings. The word is derived from two Greek words and loosely translated means, "the customs, habits, and laws of work" ***(Chanchai et al., 2016)***.