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Research Article

Psychosocial Work Stressors, Work Fatigue, and Musculoskeletal Disorders: Comparison between Emergency and Critical Care Nurses in Brunei Public Hospitals

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SUMMARY

Purpose: Little evidence estimated the exposure of psychosocial work stressors, work-related fatigue, and musculoskeletal disorders for nurses working in South-East Asian region, and research on this subject is almost nonexistent in Brunei. The main aim of our study was to provide a comprehensive exploration and estimate exposure of the study variables amongst emergency (ER) and critical care (CC) nurses in Brunei. The study also aims to compare whether experiences of ER nurses differ from those of CC nurses.

Methods: This cross-sectional study was implemented in the ER and CC departments across Brunei public hospitals from February to April 2016 by using Copenhagen Psychosocial Questionnaire II, Occupational Fatigue Exhaustion Recovery scale, and Cornell Musculoskeletal Discomfort Questionnaire. **Results:** In total, 201 ER and CC nurses (82.0% response rate) participated in the study. Quantitative demands of CC nurses were significantly higher than ER nurses. Even so, ER nurses were 4.0 times more likely [95% confidence interval (2.21, 7.35)] to experience threats of violence, and 2.8 times more likely [95% confidence interval: (1.50, 5.29)] to experience chronic fatigue. The results revealed that nurses experienced high quantitative demands, work pace, stress, and burnout. High prevalence of chronic and persistent fatigue, threats of violence and bullying, and musculoskeletal pain at the neck, shoulder, spinal, and foot region, was also reported.

Conclusion: This study has provided good estimates for the exposure rate of psychosocial work stressors, work-related fatigue, and musculoskeletal disorders among nurses in Brunei. It provided important initial insight for nursing management and policymakers to make informed decisions on current and future planning to provide nurses with a conducive work environment.

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Introduction

Psychosocial work environment factors, also known as workplace stressors, is one of the most important components to consider when determining the health and safety of a workplace [1]. Psychosocial work environment could be described as a multidimensional system that encompasses the work, the workers, and the environment [2]. It includes the organization of work and the organizational culture including attitudes, values, and practices that are carried out daily at the workplace, which affect the mental and physical health of workers [1].

Work-related fatigue is another important aspect to nursing health and safety where it has been recognized as a source of adverse impact on quality of care, client satisfaction, and patient and nurse safety [3,4]. The Canadian Nurses Association [5] defined nurse work-related fatigue as “a subjective feeling of tiredness (experienced by nurses) that is physically and mentally penetrative. It ranges from tiredness to exhaustion creating an unrelenting overall condition that interferes with individuals’ physical and cognitive ability to function to their normal capacity.” Nurses working extended hours and short recovery period may experience cognitive, psychomotor, and behavioral impairment that leads to slow reaction time, lapse in critical judgment, and reduced motivation, and thus increase in work errors [4].

Musculoskeletal disorders (MSDs), also sometimes known as repetitive strain injuries or cumulative trauma disorders, were

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reported to be one of the most common work-related health issues among nurses [6]. However, MSDs may only be apparent after days, months, or even years of exposure to work hazards before they affect the workers [1].

The effects of adverse psychosocial work environment factors were demonstrated to be detrimental for both nurses and the healthcare organization. Emergency (ER) nurses were more likely to experience violence episodes compared to nurses in any other nursing departments [7]. Factors such as effort-reward imbalance, overcommitment, high job demand, and low influence at work were found to be important reasons affecting nurses' intention to leave [8] and association towards poor mental health among nurses [9]. These factors have contributed to a high rate of workplace problems such as musculoskeletal injuries, which have directly cost healthcare organizations millions of dollars in terms of staff turnover and absenteeism [10]. In addition, there is strong evidence showing that increase in nurses' work fatigue lowers their immune function and further increase their risk of contracting health problems [11]. If left unchecked, the deteriorating health of nurses and socioeconomic problem towards healthcare organization would undoubtedly affect the overall quality of patient care [12].

However, previous instruments developed decades ago to measure psychosocial work environment factors were restricted to the measurement of a few factors based on a single theoretical model [13]. Contemporary labour market has changed the modern workplace, which is also the case for ER and critical care (CC) nursing, through medical and technological advancements. ER and CC nursing are amongst high dependency nursing specialties at the vanguard of being affected by adverse psychosocial work stressors [14]. This is mainly because work conditions here are often hectic and hard to predict due to constantly changing and wide variation in pathology received daily by ER and CC nurses [15]. Thus there is a need to re-evaluate them among these nurses who experienced a broad range of psychosocial work stressors [15]. Furthermore, most studies found originated from Western countries. Little evidence was on estimating exposure rate of psychosocial work environment factors, work-related fatigue, and MSDs for nurses working in Southeast Asian region. In particular, at the current state, it is almost nonexistent in Brunei.

Therefore, this study focuses on two research goals. The main goal was to provide a comprehensive exploration and estimation of exposure to psychosocial work stressors, work-related fatigue, and work-related MSDs in nurses in Brunei. The second goal was to compare whether the study variables differ between ER nurses and CC nurses in Brunei.

Methods

Design

This was a cross-sectional study carried out using a self-administered questionnaire from February to April 2016. The study took place in four ER departments, three adult CC units, and two pediatric CC units in all four public hospitals in Brunei Darussalam.

Data collection

At the time of this study, there were 138 ER nurses and 140 CC nurses altogether. To prevent coercion and protect the integrity of the study, the nurse manager of each department distributed 278 questionnaires randomly to nurses at all levels excluding those who were on leave or on long-term absence during the study period. All participants received a package that contained a structured self-administered questionnaire, a consent form, and a participant

information sheet. They were given 7 days to complete and return the package to the nurse manager. Respondents were also provided with an envelope to seal their questionnaire immediately after its completion. The sealed questionnaires were collected from the nurse managers at the end of the study.

Participants' basic personal background (such as age, marital status), employment background (such as qualification, number of years of working in respective units), and health background [such as body mass index (BMI), smoking] was collected. BMI was classified according to the World Health Organisation expert consultation [16].

Research tools

Psychosocial work stressors

Psychosocial work environment factors were measured using the Copenhagen Psychosocial Questionnaire version 2 (COPSOQ II), developed by the National Research Centre for the Working Environment, Denmark. COPSOQ II comes in three forms (i.e., long, medium, and short). The short version was appropriately used here since it was to be administered in the workplace. It has 40 items measuring 23 scales. Five response categories were used for each item (except for job satisfaction and work family conflict that have 4 response categories) determining either intensity (0 = to a very small extent, 1 = to a small extent, 2 = somewhat, 3 = to a large extent, 4 = to a very large extent) or frequency (0 = never/hardly ever, 1 = seldom, 2 = sometimes, 3 = often, 4 = always). Offensive behaviors including sexual harassment, threats of violence, physical violence, bullying and from whom (colleagues, manager/supervisors, and subordinates, or clients/ patients) were also assessed.

Work fatigue

Work-related fatigue was measured using the "shift workers" trait scale version of the Occupational Fatigue Exhaustion Recovery scale (OFER), developed by Winwood et al [17]. The OFER scale was used due to previous studies demonstrating good discriminant validity between acute and chronic fatigue, and measure of recovery between shifts (i.e., intershift recovery), which is an important aspect for shift workers. The scale also offers calculation for persistent fatigue. It comprised 15 items, measuring three subscales (chronic fatigue, acute fatigue, and intershift recovery and/or persistent fatigue). Seven response categories were used for each item ranging from 0 (*strongly disagree*) to 6 (*strongly agree*).

Work-related MSDs

Work-related MSDs were assessed using the "standing workers" version of the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) developed by the Human Factors and Ergonomics Laboratory at Cornell University. CMDQ is a 46-item screening tool that allows self-assessment of musculoskeletal ache, pain, or discomfort in 18 regions of the body during the last work week.

Data analysis

The mean scores for items in COPSOQ II were calculated for each scale with a score ranging from 0 to 4 (five response category). Except for work–job satisfaction and work–family conflict scales, which have scores ranging from 0 to 3 (four response category). Higher mean scores represent higher levels of the underlying concept being measured and vice versa. In order to align with previous studies on job satisfaction and self-rated health, prevalence was reported instead of mean score. Thus, job satisfaction was reported as "satisfied" or "unsatisfied", and self-rated health were reported as "excellent/very good health" or "good/fair/poor health". Offensive behaviors including sexual harassment, threats of

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