



Factors associated with mental health status of hospital nurses

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ABSTRACT

Association of individual and work-related factors as well as fatigue and quality of life (QoL) with the occurrence of mental health problems (MHPs) among 990 Iranian hospital nurses was investigated in this cross-sectional study. A questionnaire was used to collect data on individual and work-related factors, MHPs (by the General Health Questionnaire [GHQ-12]), fatigue (using the Multi-dimensional Fatigue Inventory [MFI-20]), and QoL (using the World Health Organization Quality of Life-BREF [WHOQOL-BREF]). MHPs (26.2% had GHQ-12 score ≥ 4), fatigue (particularly general, physical and mental fatigue), and poor QoL were frequent among nurses. Multivariate logistic regression modelling indicated that job experience (years), total fatigue score of the MFI-20 and its general fatigue and mental fatigue dimensions, as well as psychological health and social relationship domains of the WHOQOL-BREF were independently associated with the presence of MHPs. The findings add to the understand of the potential consequences of adverse working conditions of hospital nurses and highlight the need for ergonomic and psychosocial interventions to improve fatigue, QoL and mental health status in this occupational group.

1. Introduction

Mental health problems (MHPs) are the leading cause of disability in less developed countries, accounting for approximately 12% of the global burden of disease, and is predicted to increase to 15% by the year 2020 (World Health Organization, 2001). This represents a serious, but often neglected area in global health policy (Patel, 2007).

Evidence suggests that MHPs are relatively common in hospital nurses (Suzuki et al., 2004; Su et al., 2009), an occupational group that constitute the largest group of healthcare professionals in almost all countries. This is perhaps not surprising in view of the fact that nurses have to work in stressful environments such as hospitals and clinical settings, where excessive physical (i.e., physical and biomechanical risks) (Trinkoff et al., 2001; Yip, 2001; Dianat et al., 2013; Abdollahzade et al., 2016) and mental demands (i.e., direct contact with patients, role in quality of care, the need for developing new skills to cope with advances in technology and medical care, etc.) (Suzuki et al., 2004; Tzeng et al., 2009; Parhizi et al., 2013) are imposed on them. There is evidence that MHPs in nurses can influence their performance, safety and health, absenteeism, job satisfaction and intention to leave their current job (Lambert et al., 2004; Hilton et al., 2008; Gärtner et al., 2010; Westgaard and Winkel, 2011; Freimann et al., 2016). The MHPs among nurses have also serious implications in terms of patient safety and medical errors (Suzuki et al., 2004; Arimura et al.,

2010; Gärtner et al., 2010). Therefore, to prevent MHPs, it is necessary to improve the understanding of the factors associated with the occurrence of such problems among the nursing population. Prevention of MHPs is one of the most important factors that can have a significant impact on both nurses' health and well-being and patient outcomes.

Relatively few studies have investigated the factors associated with MHPs in hospital nurses (Lambert et al., 2004; Su et al., 2009; Freimann and Merisalu, 2015; Perry et al., 2015). Lambert et al. (2004) investigated the workplace and personal factors that might be associated with the mental health of nurses working in Japan and found significant correlations of workplace stress and coping strategies with mental health of studied nurses. In another study conducted by Tzeng et al. (2009) among health care workers in military hospitals in Taiwan, the authors reported significant associations of poor quality of life and age with MHPs in workers in that environment. Freimann and Merisalu (2015) explored the work-related psychosocial risk factors and their relationships with MHPs amongst hospital nurses in Estonia and reported that quantitative and emotional demands were associated to the prevalence of MHPs in their study population. Perry et al. (2015) reported significant associations of general health, marital status, sleep problems, disordered eating and shift work with MHPs among Australian nurses.

With specific reference to nursing personnel, this is an occupational group that may experience a relatively high level of fatigue that is often

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attributable to excessive physical and mental demands that characterise this kind of work (Hooper et al., 2010; Yoder, 2010; Geiger-Brown et al., 2012; Raftopoulos et al., 2012). Occupational fatigue (such as that experienced by nurses) is generally considered as a multi-dimensional construct, which has at least three dimensions including mental fatigue, general fatigue and total fatigue (Barker and Nussbaum, 2011; Parhizi et al., 2013). Therefore, understanding the epidemiology of fatigue as a possible adverse consequence of excessive work demands of the nursing occupation can help to develop recommendations and programs for improving the health and well-being of this group. However, to the authors' knowledge, little is known about how fatigue and its multiple dimensions are related to the mental health status of hospital nurses due to limited research in this area.

From an occupational point of view, study on the quality of life (QoL) of healthcare workers including hospital nurses is also of particular interest since it is very difficult to consider living and working conditions as two separate concepts. Therefore, it seems necessary to improve the knowledge of the mechanisms that regulate the relationship between employees and their work in this context. According to the World Health Organization Quality of Life Group (WHOQOL), QoL can be defined as: "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (The WHOQOL Group, 1998a). This definition highlights that the QoL is a complex concept that comprises different aspects including emotional well-being, psychological and physical health, and social functioning. The findings from research in this area will help to better understand the potential interactions between living and working conditions affecting the health and well-being of the employees. However, a review of the literature indicates that the relationship of MHPs to QoL has not been explored sufficiently among hospital nurses.

Based on the above mentioned background, the aims of the present study were to evaluate: 1) the MHPs, fatigue and QoL status among a sample of Iranian nurses, and 2) the association between MHPs and their contributing factors (including individual and work-related factors, fatigue and QoL). This is also of particular interest as there is limited research on these parameters among the nursing population in Iran as a less developed country, and therefore this study widens the discussion to more countries.

2. Methodology

2.1. Study design and procedure

This cross-sectional analytical study was carried out in seven large hospitals in Tehran, the capital of Iran. A questionnaire was administered to collect data on demographic and job characteristics, as well as on MHPs, fatigue and QoL status of nurses. Arrangements were made with hospital authorities for permission and access to perform the study. Then investigators visited the selected hospitals for data collection. All nurses who had worked at least for one year in their current job, and had no physical disabilities or mental diseases (by self-report) were invited to participate in this study. A total of 1450 questionnaires were distributed, of which 990 were completed and returned, giving a response rate of 68.2%. The whole questionnaire took approximately 25 min to complete. The study protocol was in accordance with the requirements of the ethics committee of the Tabriz University of Medical Sciences. All participating nurses signed a written informed consent form prior to data collection.

2.2. Data collection

Demographic and work-related details were recorded in the first part of the questionnaire. The demographic details included: gender, age, height, weight, marital status (married, single), living with children (no, yes), education level (graduate, post graduate), as well as

individual habits such as being involved in regular sport/physical activities each week (no, yes) and smoking habits (no, yes) of the respondents. Work-related items included: type of hospital (general, private), department or ward (general medical wards, surgical wards, intensive care units (ICU), critical care units (CCU), and emergency departments), job experience (years), shift work (no, yes), work schedule (8-h, 12-h and 24-h rotating shift or normal work day), and job satisfaction ('How much are you satisfied with your job? low, moderate, high') (Dianat et al., 2015).

Mental health status of the studied nurses was assessed using the 12-item General Health Questionnaire (GHQ-12) (Goldberg and Williams, 1988), which is a valid and widely used screening instrument for the detection of MHPs. Each item in this questionnaire is rated on a 4-point scale (0 = less than usual, 0 = no more than usual, 1 = rather more than usual, and 1 = much more than usual), and the total score ranges from 0 to 12. The threshold for cases classification (i.e., poor mental health) selected in this study was GHQ-12 score of ≥ 4 (Suzuki et al., 2004). The revised and validated Farsi (Iranian language) version of the GHQ-12 was used in this present study (Montazeri et al., 2003).

In addition, the 20-item Multi-dimensional Fatigue Inventory (MFI-20) (Smets et al., 1995) was used to assess fatigue. The MFI-20 is a valid and reliable tool which has been used in previous studies measuring fatigue in both general and working populations including healthcare professionals (Schwarz et al., 2003; Lin et al., 2009; Mansour et al., 2010; Bazazan et al., 2014; Rasoulzadeh et al., 2015). The MFI-20 evaluates multiple dimensions of fatigue including general fatigue, physical fatigue, reduced motivation, mental fatigue and reduced activity, which can be regarded as the main advantage of this tool. Each dimension consists of four items (with a 5-point response format) and the score range for each dimension is from 4 to 20. Higher scores indicate higher fatigue. The Farsi version of the MFI-20, with an established validity and reliability (Hafezi et al., 2010; Rasoulzadeh et al., 2015), was used in this study.

Finally, the 26-item World Health Organization Quality of Life-BREF (WHOQOL-BREF), which is a revised version of the 100-item WHOQOL (The WHOQOL Group, 1998b), was used for assessing QoL. This reliable and validated tool has been used previously to assess QoL among nurses (Su et al., 2009; Tzeng et al., 2009; Shao et al., 2010). It contains four domains including physical health, psychological health, social relationships and environmental health. Each item is rated on a 5-point Likert scale ranging from "very poor/dissatisfied" to "very well/satisfied". The total score for each domain was converted to the range of 4–20, with higher scores showing better QoL. The revised and validated version of the Farsi WHOQOL-BREF was used in this study (Nedjat et al., 2008).

2.3. Data analysis

Statistical analysis of the data, including descriptive statistics, was performed using SPSS v.17 software (SPSS Inc., Chicago, IL, USA). Demographic and work-related data were presented as mean (standard deviation (SD)), range and percentages. Cronbach's alpha was used to assess the internal consistency reliability of the questionnaires. The relationship between prevalence of MHPs and study variables (demographic and work-related factors, fatigue and QoL) was initially assessed using univariate logistic regression analysis. Multivariate logistic regression analysis was also performed using backward stepwise procedure to estimate the association between the prevalence of MHPs and independent variables in a multivariate context. For this, those variables that achieved statistical significance ($p < 0.05$) in the univariate analysis were subsequently included in this multivariate model. The odds ratios (ORs) and 95% confidence intervals (CIs) were estimated from the multivariate logistic regression model. The Hosmer-Lemeshow goodness-of-fit test confirmed the fit of the model. P values less than 0.05 were considered statistically significant.

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