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## Safety and Health at Work

journal homepage: www.e-shaw.org



### Original Article

# Workplace System Factors of Obstetric Nurses in Northeastern Ontario, Canada: Using a Work Disability Prevention Approach



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#### ARTICLE INFO

#### Article history: Received 11 March 2015 Received in revised form 13 July 2015 Accepted 14 July 2015 Available online 29 July 2015

Keywords: job and career satisfaction nurses obstetrics work absenteeism workplace disability

#### ABSTRACT

Background: The purpose of this study was to examine the relationship nursing personal and workplace system factors (work disability) and work ability index scores in Ontario, Canada.

*Methods:* A total of 111 registered nurses were randomly selected from the total number of registered nurses on staff in the labor, delivery, recovery, and *postpartum* areas of four northeastern Ontario hospitals. Using a stratified random design approach, 51 participants were randomly selected in four northeastern Ontario cities.

Results: A total of 51 (45.9% response rate) online questionnaires were returned and another 60 (54.1% response rate) were completed using the paper format. The obstetric workforce in northeastern Ontario was predominately female (94.6%) with a mean age of 41.9 (standard deviation = 10.2). In the personal systems model, three variables: marital status (p = 0.025), respondent ethnicity (p = 0.026), and mean number of patients per shift (p = 0.049) were significantly contributed to the variance in work ability scores. In the workplace system model, job and career satisfaction (p = 0.026) had a positive influence on work ability scores, while work absenteeism (p = 0.023) demonstrated an inverse relationship with work ability scores. In the combined model, all the predictors were significantly related to work ability scores. Conclusion: Work ability is closely related to job and career satisfaction, and perceived control at work among obstetric nursing. In order to improve work ability, nurses need to work in environments that support them and allow them to be engaged in the decision-making processes.

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#### 1. Introduction

By 2022, Canada will be deficient by almost 60,000 full-time equivalent nurses [1]. Canada is in the midst of a nursing shortage that is expected to intensify as baby boomers age and the demand for health care grows, in particular in rural and northern regions of the country [2,3]. Similar trends are observed internationally [4]. Joined with increased demand for health services is a decreased supply of nurses [4]. In the province of Ontario, its

residents living in the north have higher rates of chronic disease than the average provincial rate and have higher proportion of the population that are overweight or obese [5]. Moreover, there are higher proportions of the population that are heavy drinkers and smokers [6,7]. Exacerbating matters is an undesirable work environment that includes heavy workloads, inadequate support staff, stress, low quality of work life, and little involvement in decision making [3,4]. As a result, this leads to diminished work capacity and increased work disability.

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Psychosocial factors play a significant role in the current theorizing on processes related to work disability [8-10]. Over two decades of research pinpoint that sources of stress to include high psychological job demands, and a low level of control over these demands increase a nurses' exposure to job stress [11-13]. Research on the impact of workplace on worker' health and wellbeing demonstrates that occupational stress increases the risk of musculoskeletal injuries, accidents, physical and mental illness, job satisfaction, substance abuse, and smoking [12,14-16]. Excessive occupational stress has been linked with increased risk for physical and mental health issues, decreased job satisfaction, role conflict, geography, and role stress [3,16-19]. Moreover, factors such as stress, depression, job control, and job satisfaction are associated with poor work ability [20–22]. Work ability is an important construct to examine because it takes into consideration the demands of work, the worker's mental health status, and resources available [23]. Specifically, work ability results from the interaction of several person-related and workplace variables including working conditions (e.g., physical strain and environmental influences), social environment (e.g., relation with supervisors and work colleagues), a worker's training and competencies, and the worker's state of health (e.g., physical and mental domains) [24]. Therefore, workplace and personal system factors are represented by work ability and play an important role in psychological exposure for nurses [25]. Furthermore, work ability encompasses the relationships between a nurse's health, duties, and workplace environment. Policy and practice changes such as strategies to alleviate the nursing shortage, organizational initiatives to reduce levels of stress in nursing due to staffing and workload issues, and leadership/management initiatives consider these personal and workplace system factors [26–30].

The working environment determines the psychosocial and physical exposures for nurses [26]. Working in obstetrics may be an especially stressful area of health care because of its long work hours and disruptions of health care professionals personal time as seen among obstetrician and gynecologists [31]. Given the amount of time and energy people expend at the workplace, it is crucial for employees to be satisfied about their life at work [32]. Work occupies an important place in many individuals' lives and the workplace environment is likely to affect not only their physical but also their psychological wellbeing, as well as preventing work disability. There is a dearth of evidence examining the workplace factors of obstetric nurses. There have been few studies that examine the effects of the obstetric environment on nurses and its relationship to preventing work disability.

Loisel et al [33] proposed a framework in which the workplace, compensation and the health care system influence employee disability. The framework suggests that work disability is influenced by various elements and levels (e.g., physical and psychological elements) from the perspective of the worker [33], challenges and opportunities of the return to work process while paying close attention to the worker's job, the workplace organization, and possibly the external environment in which the firm functions. These elements require a systematic consideration and organized manner if work disability is to be avoided.

The aim of work disability prevention is to reduce and ideally eliminate the causes of work-related injuries [34]. In practice, this model has been used by stakeholders to better understand the relationship between work, health, and disability prevention [33].

Home—work interface is related to work—life balance and is about having a measure of an employee's control over their work [35]. Home—work interface has shown a positive influence in mitigating occupational stress and increasing work ability scores [3]. Control over nurses' home—work environment was found to be an important component of work ability [3]. Our previous work of

stress and home—work interface in nurses has found that higher work ability scores related to accommodating family and work commitments lead to elevated work ability scores [3]. One possible explanation is that work—life balance relates to the degree to which employees feel they have control over when, where, and how they work. This reflects a worker's perception that they can fulfill life inside and outside of paid employment, to the benefit of the individual, organization, and broader society [36], additionally, reflecting the extent to which the employer supports the employee's home life.

Work disability is defined as a worker's inability (related to impairment, injury, or illness), to participate fully in employment over the short- or long-term. Furthermore, some workers have permanent impairments, while others have chronic or episodic conditions. This is based on the Ontario Human Rights Commission definition in the human Rights Code [37].

In the 2005 National Survey of the Work and Health of Nurses, which surveyed Canadian nurses, absenteeism rates for nurse supervisors and nurses totaled 17.7 million hours (due to illness and injuries) [38]. This number of hours is the equivalent of 9,754 full-time nursing jobs [38]. Over half (54%) of nurses said that they often arrived early or worked late in order to get their work done; 62% reported working through breaks. Two-thirds (67%) of nurses felt that they often had too much work for one person, and 45% of nurses said that they were not given enough time to do what was expected of them [38]. This situation is a direct call to nurses' unions, nurses, and employers to work collaboratively to address these critical occupational health issues. These factors have been shown to be associated with decreased work ability scores [21].

The purpose of this study was to examine the relationship between nursing personal and workplace system factors (work disability) and work ability index scores in Northeastern Ontario, Canada.

#### 2. Materials and methods

#### 2.1. Participants

A total of 111 registered nurses were randomly selected from the total number of registered nurses on staff in the labor, delivery, recovery, and *postpartum* areas from four hospitals in northeastern Ontario, Canada. Using a stratified random design approach, 51 participants were randomly selected in Sudbury, 21 participants in North Bay, 20 individuals in Sault Ste. Marie, and 18 individuals in Timmins. The response rate for Health Sciences North was 100% (51/51 participants), 67.7% (21/31 participants) for North Bay Regional Health Centre, 62.5% (20/32 participants) for Sault Area Hospital, and 75% (18/24 participants) for Timmins & District Area Hospital. All nurses had an equal chance of being selected for the study. A list of the names of these nurses was obtained from the unit and assigned a number. Then, the list was randomized. A random number generator selected nurses: 51 in Sudbury, 31 in North Bay, 32 in Sault Ste. Marie, and 24 in Timmins. A total of 138 nurses represent potential participants from the four hospital sites.

#### 2.2. Definition of work ability

Work ability is defined as the worker's capacity to perform their work, and was measured by an index describing their health resources in relation to work demands [26]. The WAI [39] is a widely used 57-item scale used for evaluating registered nurses' work ability. The operational definition of work ability can be defined as the ability of a worker to perform their job, considering the specific work demands, individual health conditions and mental resources. The WAI contains seven subscales and response ranges from 0 to 10.

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