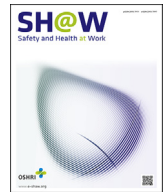




Contents lists available at ScienceDirect

## Safety and Health at Work

journal homepage: [www.e-shaw.org](http://www.e-shaw.org)

## Original Article

# Impact of Psychosocial Factors on Occurrence of Medication Errors among Tehran Public Hospitals Nurses by Evaluating the Balance between Effort and Reward

Q7 Tahere Yeke Zaree<sup>1</sup>, Jalil Nazari<sup>1,\*</sup>, Mohhammad Asghary Jafarabadi<sup>1</sup>, Tahere Alinia<sup>2</sup>

<sup>1</sup> School of Health, Tabriz University of Medical Sciences, Tabriz, Iran

<sup>2</sup> Shahid Beheshti University of Medical Science, Tehran, Iran

## ARTICLE INFO

## Article history:

Received 9 January 2017

Received in revised form

12 November 2017

Accepted 12 December 2017

Available online xxx

## Keywords:

Balance effort–reward

Medication error

Nurse

Psychosocial factors

Stress

## ABSTRACT

**Background:** Patient safety and accurate implementation of medication orders are among the essential requirements of par nursing profession. In this regard, it is necessary to determine and prevent factors influencing medications errors. Although many studies have investigated this issue, the effects of psychosocial factors have not been examined thoroughly.

**Methods:** The present study aimed at investigating the impact of psychosocial factors on nurses' medication errors by evaluating the balance between effort and reward. This cross-sectional descriptive study was conducted in public hospitals of Tehran in 2015. The population of this work consisted of 379 nurses. A multisection questionnaire was used for data collection.

**Results:** In this research, 29% of participating nurses reported medication errors in 2015. Most frequent errors were related to wrong dosage, drug, and patient. There were significant relationships between medications errors and the stress of imbalance between effort and reward ( $p < 0.02$ ) and job commitment and stress ( $p < 0.027$ ).

**Conclusion:** It seems that several factors play a role in the occurrence of medication errors, and psychosocial factors play a crucial and major role in this regard. Therefore, it is necessary to investigate these factors in more detail and take them into account in the hospital management.

© 2017 Occupational Safety and Health Research Institute, Published by Elsevier Korea LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Medical errors are one of the most common threats to patient safety. About one of 10 patients was harmed during hospitalization due to medical errors, 7% of them leading to a lethal outcome [1]. The incidence of harm due to medical errors had increased from the eighth cause of death in 1999 to the third cause in 2008 [2]. A study released in 2016 found that medical error is the third leading cause of death in the United States, after heart disease and cancer [3]. Therefore, ensuring patient safety is a top priority for medical staff [4].

There are many types of medical error, from minor to major [1]. Medication error is one of the most common types of medical errors and also a source of morbidity and mortality for patients [6]. It is defined as disregarding the status of forming a damage, risk, or any avoidable incidence to occur during the process from

medication request to patient monitoring [7]. Medication errors may not only be costly and harmful to a patient's life but also sometimes has irreparable consequences [8,9]. According to the Institute of Medicine, 400,000 cases of avoidable patient injury due to medication errors take place annually in hospitals in the United States. In addition, between 44,000 and 98,000 hospital patients have been estimated to die annually as a result of medication errors [6]. They cost 3.5 billion dollars annually, which is 8,000 dollars for each error [10]. Medication errors cannot only lead to a patient's death but also can increase a patient's length of staying in the hospital and health-care costs [11]. They also lead to pharmaceutical failure which in turn may damage the patient's health [12].

It is estimated that an average of 40% of each nurse's time in a hospital would be spent on drug delivery [13]. One of the most common accidents in nursing profession is medications errors [14]. Because the nurse is the main core of health-care providers [15] and

\* Corresponding author. Department of Ergonomics & Occupational Health, School of Health, Tabriz University of Medical Sciences, Tabriz, Iran.  
E-mail address: [nazari\\_j@yahoo.com](mailto:nazari_j@yahoo.com) (J. Nazari).

the last person in the drug delivery chain, she/he is responsible for the occurrence any medication errors [13,16].

Medication errors can occur both as a result of human mistakes and from systemic errors [9]. However, the impact of them on all health-care providers is critical. Human error has been implicated in nearly 80% of adverse events that occur in complex health-care systems. The results of numerous studies have revealed that work stress is associated with the increased risk of mental and physical illness among employees [17–19]. As medical staff, especially nurses, must respond quickly to the needs of patients and families, their job is stressful. Stress influences on the cognitive pattern also reduce an individual's performance [20].

Rapid progresses in the nature of work regarding design, management, organization, and the wider context of work have led to the emergence of a new danger called psychosocial risks [21]. These risks are associated to problems such as work-related stress, violence, bullying, and harassment, all of which have the potential to significantly impact the well-being of the individuals, enterprise, and society [22,23]. Some of psychosocial factors at work are job content, workload, work schedule, work control, environment and equipment, organizational culture and performance, interpersonal communication, role in organization, career development, and home–work interaction [24]. These factors have the potential to cause psychological and physical harm such as work-related stress [25,26]. Work-related stress is the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their capability to cop [26]. The created stress increases risk of mental and physical illness among staff [17–19]. It may not only reduce the health of staff but also weaken their ability to provide care, therefore, worsening the quality of poorer care and patient health [27]. Issues of work-related stress, depression, and anxiety contributed to an economic burden of over £530 million in the United Kingdom in 2005–2006 [28]. Therefore, identifying and managing psychosocial factors can cause positive outcomes such as improved health, motivation, commitment, productivity, and quality of work [26–29] and probably reduction in medications error and improving patient safety.

The vast majority of medical errors results from faulty systems and poorly designed processes versus poor practices or incompetent practitioners [30], and the nature of stress also is mental. To quantify and evaluate the psychosocial effects of working environment, the researchers used theoretical model. There are two models to assess stress caused by psychosocial factors, model of demand–control [31] and effort–reward imbalance (ERI) [32]. The ERI model emphasizes both the effort and the reward structure of work [33]. Efforts represent job demands and/or obligations that are imposed on the employee. Occupational rewards distributed by the employer consist of money, respect, and job security/career opportunities. More specifically, the ERI model claims that work characterized by both high efforts and low rewards represents a reciprocity deficit between “costs” and “gains”. This imbalance may cause sustained strain responses. Therefore, working hard without getting an appreciation is an example of a stressful imbalance. In addition, it is assumed that this process will be intensified by overcommitment (a personality characteristic), such that highly overcommitted employees will respond with more strain reactions to an ERI than less overcommitted employees. In fact, the imbalance is caused by giving high efforts and receiving low rewards, which leads to negative emotions and stress. In addition, the ERI model includes an inherent commitment which can strengthen the balance between effort and reward or causes stress independently [32,34,35].

Abundant research has investigated medication errors of nurses in Iranian hospitals, and the results showed that the main reasons behind these errors were working conditions [36], rewriting of prescriptions [37], high working load, few numbers of employees,

physical or mental fatigue [38], and by general poll done among nurses. As the ERI model was designed to assess job stress caused by psychosocial factors, and to the best of authors' knowledge, no study has yet investigated the impact of psychosocial factors on medication errors by evaluating the imbalance between effort and reward in Iran. The present study was designed to investigate the impact of psychosocial factors on the occurrence of medication errors among Tehran public hospital nurses by evaluating the balance between effort and reward. The result of this study might help to develop procedures to reduce the rate of such errors and to put in place safeguards to improve staff safety and increase the quality of care.

## 2. Materials and method

A cross-sectional descriptive analysis method was conducted to investigate the impact of psychosocial factors on the occurrence of medication errors among Tehran public hospitals nurses by evaluating the balance between effort and reward.

### 2.1. Participants

Between September 2015 and June 2016, nurses working in public hospital in Tehran, Iran, completed a survey about their experiences with medical errors and effort–reward imbalance. The convenience sampling method was used in this study. Of the initial sample of 550 nurses, 90 nurses were ineligible because they had less than one year of work experience or were not clinically active, resulting in 450 eligible participants, 379 (84%) of whom completed surveys.

Selection criteria for participation included the following: nursing graduate, at least one year of work experience, official employment status, treaty, convention or staffing plan, and lack of physical and mental disorders. The exclusion criteria included incomplete questionnaire completion, being treated as results of physical and mental illness and being in a critical condition (death of close relatives, accident, etc.).

### 2.2. Instruments

A multisection questionnaire was used to collect data. The first section of the questionnaire included demographic information of nurses (age, gender, marital status, critical condition history, and physical activity) and job information (working section, educational level, working shifts, working experience, type of employment, having a secondary job, amount of additional shifts, history of participation in courses relating to medicinal knowledge, and income).

The second section of the questionnaire included some questions about medication errors in the last year. Participants were asked to indicate whether they had ever been personally involved with giving drugs to a wrong patient, giving wrong dose of medication, giving extra unordered medication, lack of drug observation (medication not administered and drug interactions), giving wrong drug, wrong timing of medication administration, or incorrect medication route [39]. In addition, the participants were asked to write the frequency of every incidence.

The third section of the questionnaire was related to psychosocial factors, including a Persian Version of ERI questionnaire [32], which has been translated into Persian [40]. The ERI questionnaire has 23 items, consisted of three categories: “effort” (6 items), “reward” (11 items, including esteem, job promotion, and job security), and “overcommitment” (6 items). Responses to the items of “effort” and “reward” were scored on a 5-point Likert scale, 1 indicating no particularly stressful experience and 5 indicating a very highly stressful experience; but responses to the items of commitment were

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات