

## Studying Psychological and Organizational Factors' Roles on Occupational Accidents among Nurses and Nursing Aids in Qom, Iran

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### ABSTRACT

It is clear that safety in healthcare centres in both fields of staffs and patients is under influence of various factors and needs considering organizational and psychological variables. This study aimed to find the effects of organizational citizenship behaviour (OCB), patient safety climate (PSC) and fatalism on occupational accidents among nurses and nursing aids in one of the non-governmental hospitals in Qom, 2017.

Two hundred people from the study population were selected by simple random sampling method and entered the study. A researcher-made demographics questionnaire, Williamson *et al.* questionnaire for fatalism and valid questionnaires for PSC and OCB were tools to gather data. The relationship between the variables was analyzed using ANOVA and T-test through SPSS V20 and structural equation was done by AMOS V8.8.

One hundred and seventy-seven questionnaires out of 200 ones were entered into the analysis phase. Women with 104 (58.8%) were the most frequent and 71.8% of participants were married. Participants had an average age of 34.2(±9.37) years. Reliability of the questionnaires was acceptable. Analysis depicted effects of fatalism on occupational accidents ( $\beta=0.15$ ), the patient safety climate on OCB ( $\beta=0.13$ ), and OCB on occupational accidents ( $\beta=-0.13$ ) ( $p<0.05$ ).

Observations illustrated that the studied subjects were in a relatively moderate level in all three factors. The Psycho-spirit factor of fatalism and organizational factor of OCB was related with occupational accidents, and PSC also with OCB.

**Keywords:** Fatalism, Organizational citizenship behaviour, Patient safety, Occupational accidents, Healthcare

### INTRODUCTION

People in different workplaces may face the occupational accidents that have roots in individual and/or organizational factors. Effective safety management should effort to prevent accidents through considering different human factors [1]. Especially in the case of nurses that are at risk of different accidents and injuries [2, 3]. So, considering variables such as organizational citizenship behaviour (OCB), patient safety climate (PSC) and fatalism are important to control staffs' and patients' safety issues. Fatalism is defined as the belief that incidents are foreordained and unpreventable [4].

Fatalism affects people's behaviour negatively [5]. The quality of providing services in hospitals and healthcare centres is very important. According to past studies, strengthening organizational citizenship behaviours by medical personnel, especially nurses, can lead to high quality of services in healthcare centres could prevent increasing the additional costs of healthcare systems and reduce failures of nursing staff in hospitals [6]. Therefore, it is important to know the

factors that affect it. Organizational citizenship behaviour that is inspired by a good citizen describes a worker that perform his or her duties to help better organization performance and does not hesitate to do even more than their allocated tasks. In other words, employees with high levels of organizational citizenship behaviours, like a committed citizen, are willing to work without any expectations to improve the organization [7].

Patient safety prevents harm to patients during the process of health care services [8, 9]. So, this issue turned to be a crucial factor in healthcare systems recently and has taken a significant attention worldwide [9]. Patient safety includes risk evaluation, ensuring reliable processes and decreasing variation, hazard management, medical error control and focusing on achieving better outcomes, suitable record-keeping and training, and finally, utilizing proofs to make certain that a service is acceptable. Beyond a doubt, patients' safety in healthcare sector is multifactorial [10]. It seems that organizational safety climate is considered as one of

the effective factors on the patients' safety [11] that has relation with OCB [12]. Safety climate is defined as the workers' safety perception that influences their motivation about their work environment [11]. Organizations with a suitable safety climate are characterized by shared perceptions of patient safety importance and by confidence in the preventive measures efficacy about medical errors and work performance [13]. Patient safety climate is defined as a measurable component of safety culture with focuses on psychological aspects [14].

On the other hand, fatalism in the field of safety argued that injuries are inevitable and happen in terms of coincident and fate, and is an obstacle to the safe occupational behaviours acceptance [15]. Hence, this attitude would be reflected in behaviours and result in safety measures to be not implemented or poorly enforced. Such people will increase accident occurrence probability. The findings of the study by Patwary *et al.* illustrated that fateful ideas among staffs reflected their lack of accidents control understanding and also revealed the lack of organizational awareness [16]. In Henning *et al.*'s study around the impact of individual differences on organizational safety, it has been pointed that fatalism is like external locus of control for safety in which people suffer from lack of safety control feelings and the belief that they are directly involved in the accidents occurrence [17]. People with external locus of control have lower satisfaction than the others [18] so, more probable to experience accidents [19]. Fateful individuals also take larger risks because their knowledge about the risk and accident is limited and they are not able to measure the probability of an event occurrence [17]. Persons with high levels of fatalism have problem with the safety procedures acceptance [20].

Based on literatures, safety climate level in an organization could influence perceived uncontrollability and helplessness. Uncontrollability perception would be created when a worker cannot meet the predefined career goals. If workers believe that they are unable to control their work/life incidents and allocate them to global /stable/ internal causes, they will experience helplessness. Kiani *et al.* quoted McKean (1992) "Helpless individuals perceive future events as uncontrollable, and therefore, decrease their attention to work situation" [21].

The purpose of this research was to study the relationship of fatalism as a psychological factor, OCB, and PSC as organizational factors with occupational accidents among nurses and nursing aids in one of the non-governmental hospitals in Qom, 2017.

## MATERIALS AND METHODS

Two hundred people regards Morgan's table, from the statistical population, were selected by simple random sampling method. Demographic factors were collected by a researcher-made questionnaire including work experience, educational level, gender, marital status, and age. Fatalism was also assessed through a questionnaire provided by Williamson *et al.* [22] with five Likert answers (5-totally agree to 1-totally disagree). Higher scores mean that individual found safety hazards more vulnerable and uncertain. The reliability of its Persian version was tested by Kiani and Khodabakhsh using split-half (0.78) and Cronbach's alpha (79%) [15]. The Organizational Citizenship Behavior Questionnaire contains 20 questions with Five Likert answers (1- never to 5- every day). The score for each questionnaire will be between 20 and 100, and higher scores indicate better situation. The reliability of the tool is 0.89 based on Cronbach's alpha [23]. Original version of the questionnaire was first translated into Farsi and then returned to the original language by an English expert and finally, its face validity was confirmed. Questionnaires were completed Self-reporting and semi-supervised. Patient's safety climate was measured by a valid questionnaire [8] including 20 questions. A five Likert type answers was used for this tool (from 1 as completely disagree to 5 as completely agree). Reliability of questionnaires has been measured by Cronbach's alpha to test internal consistency. In addition, occupational accidents happened to responders were reported by them and were then compared with available documents to increase accuracy. Occupational accident means an occurrence arising out of or in the course of work which results in a fatal or non-fatal injury [24] and/or damages to properties [25]. The relationship between the variables was analyzed using Pearson correlation, ANOVA and T-test through SPSS V20 and structural equation modelling was done by AMOS V8.8.

## RESULTS

One hundred and seventy-seven out of 200 questionnaires were passed to the analysis phase, so response rate was 81%. Women with 104 (58.8%) were most frequent; also 71.8% of participants were married. In addition, people with bachelor's degree and above were in majority (133 ones). The survey showed that only 29 people were not in a work-shifting system. Besides, 69 respondents experienced occupational accident. Table 1 provides information on qualitative variables.

Participants had an average age of 34.2(±9.37) years and their work experience was 10.05 years in average. Studied subjects had an average of 1.28 accidents. Additional information is shown in Table 2.

**Table 1:** Qualitative demographic factors description

| Factor                     |                    | Frequency | %     |
|----------------------------|--------------------|-----------|-------|
| Gender                     | Male               | 73        | 41.24 |
|                            | Female             | 104       | 58.76 |
| Marriage status            | Married            | 125       | 71.84 |
|                            | Single             | 49        | 28.16 |
| Education                  | Diploma            | 26        | 14.69 |
|                            | Associate's degree | 18        | 10.17 |
|                            | Bachelor or higher | 133       | 75.14 |
| Shift working              | Yes                | 145       | 83.33 |
|                            | No                 | 29        | 16.67 |
| Occupational Accident (OA) | Yes                | 69        | 40.35 |
|                            | No                 | 102       | 59.65 |

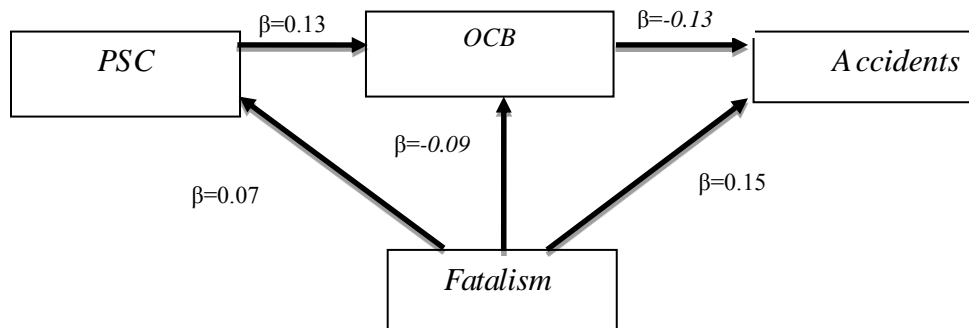
**Table 2:** Descriptive statistics of quantitative variables

| Variable                            | Minimum | Maximum | Mean  | Std. Deviation |
|-------------------------------------|---------|---------|-------|----------------|
| Age                                 | 19      | 60      | 34.2  | 9.37           |
| Work experience                     | 1.0     | 35.0    | 10.05 | 9.56           |
| Safety trainings                    | 0       | 14      | 1.89  | 2.27           |
| Accidents number                    | 0       | 10      | 1.27  | 2.12           |
| Organizational Citizenship Behavior | 35      | 100     | 62.32 | 12.97          |
| Fatalism                            | 4       | 18      | 14.33 | 3.52           |
| Patient Safety Climate              | 44      | 96      | 68.4  | 7.86           |

**Table 3:** Direct and indirect effects of factors on each other using structural equation modelling

| Studied relation     | Direct effects | Indirect effects | Total effects |
|----------------------|----------------|------------------|---------------|
| Fatalism → PSC*      | 0.07           | -                | 0.07          |
| Fatalism → OCB**     | -0.09          | 0.01             | -0.08         |
| Fatalism → Accidents | 0.15           | 0.01             | 0.16          |
| PSC → OCB            | 0.13           | -                | 0.13          |
| OCB → Accidents      | -0.13          | -                | -0.13         |
| PSC → Accidents      | -              | -0.02            | -0.02         |

\* Patient Safety Climate  
\*\* Organizational Citizenship Behavior



**Fig. 1.** Structural equation modelling for analyzing the effect of Patient Safety Climate (PSC), Organizational Citizenship Behavior (OCB) and fatalism on occupational accidents

**DISCUSSION**

Accidents in the workplace have physical and psychological effects on employees in developed and

It should be noted that the reliability of the instruments was tested using Cronbach's alpha and its value for fatalism was 0.69, organizational citizenship behaviour was 0.896 and 0.87 for the patient safety climate.

Regarding fatalism, as shown in Table 2, the studied personnel had an average score of 14.33. Correlation between fatalism score and quantitative demographic variables indicated that only the number of training courses had a significant relationship with it (P<0.01) and Pearson coefficient was 0.21. Fatalism would experience increase with an increase in the number of safety training courses. Using t-test, men's fatalism was higher than women (p<0.01).

On the other hand, direct and indirect effects of fatalism, PSC, OCB and occupational accidents on each other were investigated using structural equations modelling and Goodness of Fit indices of the model were as  $\chi^2/df= 0.23$ , P-value= 0.6, Comparative Fit Index (CFI)= 1, Normed Fit Index (NFI)= 0.98, Adjusted Goodness of Fit Index (AGFI)= 0.99 and Root-Mean-Square Error of Approximation (RMSEA) was (0.0, 0.1).

Analysis depicted relationship between fatalism and occupational accidents, PSC and OCB, and OCB with occupational accidents (p<0.05) (Table 3). Also, coefficients resulted from the model is illustrated in Fig. 1.

developing countries [26]. Changing the culture of fatalism is a way to control occupational accidents [27-29]. Findings depicted that reliability of the

questionnaires was acceptable, compared with 0.7 as a desirable reliability level [30]. Obtained result showed that mean of fatalism was 14.33 out of 25<sup>1</sup> (table 2). Thus, it was lower than middle score (15<sup>2</sup>). This finding was in line with Kiani and Khodabakhsh [15]. In the present study, fatalism was positively associated with the number of safety training courses. Findings about relationship between training and fatalism are various. While previous research has found inverse relationship between these two factors [31] another study found that training had no effect on fatalism [32]. In spite of the fact that lack of education can lead to fatalism [31] the studied staffs were relatively in high education levels. Fatalism can be considered as an attitude variable [33, 34] so its change will be accompanied with problems. Quality of training courses is a key parameter, if not appropriate would not be able to change the people's attitudes around fatalism.

Findings indicate that fatalism was associated with accidents ( $\beta = 0.15$ ) (table 3). It means with increase in fatalism among nurses and nursing aids, occupational accidents would also rise in the workplace. This was similar to the result of Patwary *et al.* [35]. Other researches has shown that fatalism was diversely correlated with occupational awareness [36, 37], and occupational awareness was also related to accidents [38]. People with fatalism opinion are not interested in knowing and not worried about what they think is beyond their control. As a result, this attitude leads to less risk perception, as well as a lower understanding of job situations [39]. These people regard the accidents as bad luck and believe that accidents would not be prevented [21]. Therefore, this opinion leads them to a lack of compliance with safety behaviours during work [40]. Kayani *et al.* also considered fatalism as a barrier to safe behaviour [1]. There was no significant relationship between fatalism and PSC in the present study (Table 3). However, relationship between fatalism and safety was significant in some studies [15].

OCB had an average of 62.32, which was moderate in comparison with 60 as the middle (Table 2). OCB as one of the new indicators of individual's participation in the organization was considered in this study. Organizations also expect their personnel to show functional behaviours such as creativity, and organizational citizenship behaviours that help the organization to achieve its goals [41]. Therefore, this amount of OCB in this healthcare centre cannot be acceptable. In addition, OCB is related to the occupational accidents and affects it (table 3). With increasing in organizational citizenship behaviour,

accidents would reduce. This connection can be found in other studies. Gyekye and Salminen argued that with increasing OCB, compliance with safety policies would be increased and occupational accidents would decrease [42]. Past research has argued that OCB is directly related to safety behaviour [43], on the other hand, improving safety behaviour will be accompanied by a reduction in occupational accidents [44].

The PSC had an average of 68.4, which is slightly above moderate level compared with 60 (mid-range) (table 2). The analysis of this study showed that PSC has a positive effect on OCB and its promotion improves behaviour (table 3). Lee *et al.* reported that safety climate predicts citizenship behaviour [12]. Lee concluded people with higher levels of safety climate have a higher intention to do behaviours such as medical errors reporting [45]. If better management conditions and consequently higher level of climate being in the organization, individuals will behave higher than formal requirements, do the job better, fill the gap between instructions and rules on one hand and the dynamic flow of real conditions on the other hand. This helps to enhance the organization's productivity and more satisfaction with its services.

## CONCLUSION

Observations illustrated that the studied subjects were in a relatively moderate level in all three factors. Fatalism and OCB were related with occupational accidents, and PSC also was related to OCB. It is possible to upgrade the safety climate and thus reduce accidents through managerial activities advancement and improvement of personnel perspective on safety. One more thing attempts to change the views of individuals from fatalism can also be on the agenda of managers, which will lead to a reduction in accidents.

## ETHICAL ISSUES

Ethical issues have been completely observed by the authors. Participants were allowed to leave the study in any step. Also, researchers explained all procedures and requirements for participants.

## CONFLICT OF INTEREST

There is no conflict of interest to be declared.

## AUTHORS' CONTRIBUTIONS

All authors equally contributed to write this manuscript.

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<sup>1</sup> 5(number of questions) \*5(maximum score for each question)=25

<sup>2</sup> 5(number of questions)\*3(middle score for each question)=15

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