

An Analysis of Factors Affecting the Creation of Tension and Chaos among Nurses (Case Study: Public and Private Hospitals of Yazd Province)

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ABSTRACT

Introduction: Tension and chaos are considered as a socioeconomic phenomenon that can have adverse effects on individuals, organizations, and the community if not properly managed. Therefore, this study was aimed to investigate the factors affecting the formation of tension and chaos among nurses of Yazd Province, Iran.

Methods: This exploratory mixed methods research was conducted on nurses selected from 10 out of 31 hospitals of the province through cluster sampling and proportionate stratified random sampling. Data were collected using interview and a researcher-developed questionnaire. In total, 376 individuals were enrolled. The validity of the questionnaires was evaluated by face and content validity, and its reliability was verified using Cronbach's alpha test.

Results: Out of 47 factors identified, 44 factors explained 70% of the tension construct. These factors were classified into seven categories and confirmatory factor analysis was used to verify the construct validity of the categories. The results showed acceptable initial clustering. Moreover, financial and economic factors, work conditions and job security were identified as the most important factors for explaining the studied construct.

Conclusion: Given the issues discussed and viewpoints expressed about the seven categories identified regarding the strike by hospital directors, human resources area must be paid special attention and measures beyond changing the name of the administrative unit to human resources or human capital must be taken.

Keywords: Strike, Nurses, Hospitals

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Introduction

Strike is considered as one of the most important aspects of tension and chaos. This concept is defined as a refusal to work in an organized, coordinated, and collective manner by the employees of an organization or industry to meet certain demands (1). The strike is recognized by Whitehead as a kind of failure to respect the governing agreements and norms, as well as a clear indication of the existence of a problem in the industrial relations system (2). Strike often occurs when employees are disappointed with the norms, frameworks, and patterns for resolving conflicts, and think that the only way to achieve their goals is stopping to work (3). According to Hicks (1932), most strikes are the result of inadequate negotiations that ultimately end in favor of the employer and the management (4). According to the Ashenfelter-Johnson model (1969), the strike is affected by asymmetric information at the management and operational levels of the organization and occurs due to a gap between the employee's expected salaries and the amount paid by the employer (5).

Strike is considered as one of the most important social and economic problems in a country (6). Despite the steady decline of this phenomenon in the United States and the United Kingdom in the last two decades (7), strike is still one of the priorities of these countries. Contrary to the statistics presented, the frequency of strikes has not decreased in South Africa (8) India and Brazil, and the number of illegal strikes in China continues to rise rapidly (9).

With regards to the responsibilities of health systems across the globe in the prevention, care and treatment of mental and physical diseases, they play an important role in improving the quality of life, especially in developing countries. If any component of a health system is faced with a problem, not only the existence of that system is threatened, but also many citizens face unpredictable difficulties and injuries in addition to the loss of public confidence in the system (10, 11). The most important components of a health system are their specialist groups, the most

influential of which include nurses since not only they quantitatively account for a large proportion of the healthcare staff (approximately 80% in some cases), but they also hold numerous and extensive responsibilities (12). In Iran, every nurse has at least 10 work shifts per month in overly-crowded health centers, adversely affecting their body and mind along with issues related to night shifts, the mental conditions of patients and their companions, and the transmission of certain diseases through contact with the patient (13).

Burnout, exhaustion, fatigue, anger, seclusion, and lack of effective and appropriate decision-making are also observed among nurses frequently, which lead to job dissatisfaction (13, 14). In addition, frequent referral of patients to hospitals is on rise in Iran due to the implementation of the Health Reform Plan and consequently substantial reduction in treatment costs. This plan imposes a huge burden on healthcare teams, including nurses, since it has not been supplemented with a tangible change in the manpower that are assumed to deliver services in this plan. The Deputy of Nursing of the Ministry of Health and Medical Education has reported a shortage of 120000 nurses, which has led to job dissatisfaction in approximately 65% of nurses (15). These issues have led to an increase in turnover or turnover intention among nurses on the one hand and the decrease of the number of applicants for this profession despite the growing increase of the educational healthcare centers on the other hand (16, 17). These problems are more evident in some provinces, such as Yazd, which are the medical and health hubs of Iran.

Given the current conditions of the country, the authorities have raised the possibility of recurrence of this issue. It is therefore important to identify the factors that increase the risk of strike among nurses so that they can be managed before strike occurrence. This issue must be paid attention because it will help reduce the hidden and evident costs associated with strikes. Despite the numerous studies carried out on strike worldwide, the number of studies in Iran is extremely low, and the

available evidence is related to other professions. Regarding health professions, no scientific research has yet been conducted on this issue in Iran. However strike among nurses has been evaluated in several studies in other countries, including the study of Clarke & O'Neill (2001).

They investigated the causes of strikes by reviewing the news and information collected from journals and images of nurses' strikes in Ireland and found that gender discrimination played an important role in the occurrence of strikes (18).

The review article of Bryskin on strikes held across Europe by nurses through reviewing the articles and manuscripts published from 1990 to 2010, showed that gender, patriarchal dealings, poor healthcare, and inappropriate interactions were the main causes of strikes. Despite numerous problems in nursing, such as the work difficulties and psychological and physical pressures, measures are being taken to solve them through discourse and negotiations and strengthening the associations in this profession through professional and ethical commitments (19). Moreover, Mudaly & Nkosi (2015) reported the factors involved in distress and dissatisfaction of employees, which led to turnover (one of the ways of displaying strikes), to be family problems, lack of motivation to attend workplace, diseases, financial issues, inappropriate management, long working hours, increased workload, unfavorable work conditions, lack of proper equipment, unfair advertising, unfair selection of nurses for training, understaffing, lack of a reward system, and decision-making without the participation of nurses (20).

According to the study of Adam et al. (2018), in which the strike was investigated among nurses and doctors, strike led to an increase in the number of patients and a reduction in services delivered in a Kenyan community, imposing significant social and political losses on the community (21).

The distinctive point of the current study is to investigate strike among nurses in Yazd province and to explain the importance of strike among them. Factors for tension in nurses and formation of early intention to initiate a strike were identified in this study through a broad literature review in

various industrial and service enterprises. In addition, researchers sought to increase the accuracy of the study by using both qualitative and quantitative methods.

Methods

Exploratory mixed methods design was used to conduct this study whose study population consisted of all nurses of public and private hospitals in Yazd province. Considering the nature of the research, which is a challenging security issue, efforts were made to fill the questionnaires in person and with the consent of individuals. In addition, the name of the hospitals remained confidential. The size of study population was approximately 3700 and sample size was determined to be 376 using the Morgan table.

In order to select the research samples, first study population was divided into 31 clusters 10 of which were randomly selected using simple random sampling. Secondly, stratified sampling proportional to the number of nurses in each hospital was used to select participants. This research was carried out over a period of nine months. In order to measure the importance of each item in the strike, a questionnaire was designed to investigate 47 indices using 6-point [Absolutely disagree (1), Disagree (2), Partly disagree (3), Partly agree (4), Agree (5), and Absolutely agree (6)] Likert scale items

indices were formed based on previous studies by a committee of experts on the subject, including two experts from the Governorate (political-security deputy), members of Yazd University of Business-Oriented, Behavioral and Human Resources Department (n=3), Organization of Cooperatives, Labor and Social Welfare (n=1), and human resources managers of hospitals (n=2), and the drawn indices were finalized. In order to confirm validity, construct, content and face validities were investigated. Regarding the internal consistency assessed to investigate reliability, the Cronbach's α coefficient for all dimensions ranged from 0.77 to 0.90. Data analysis was performed in IBM SPSS Statistics 21 and LISREL 8.8. It should be mentioned that normality of data distribution

was investigated by Kolmogorov-Smirnov test that showed data were normally distributed. The research steps are shown in Figure (1).

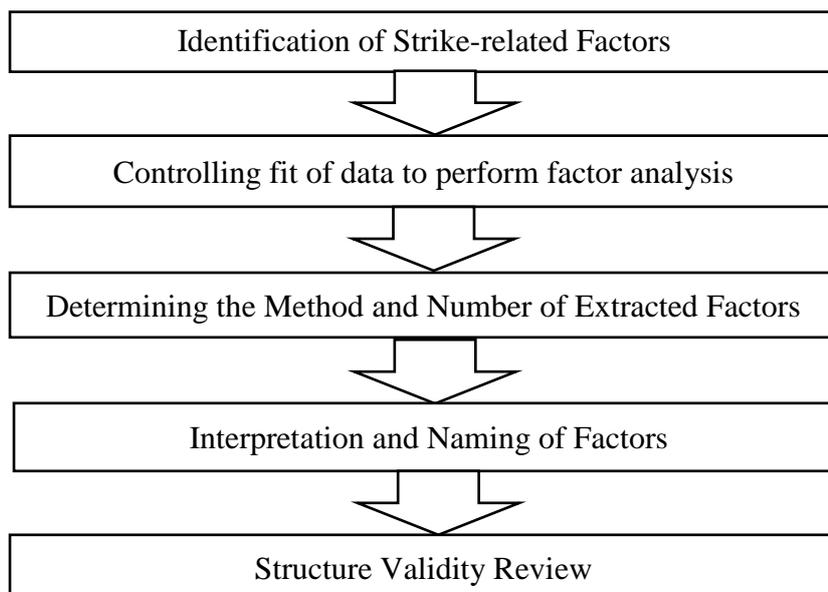


Figure 1. Research implementation steps

According to Figure (1), to achieve the research purpose, researchers tried to divide the research process into five main steps whose results will be presented in the next section.

Results

Given that in this research, questionnaire was used to collect data, an appropriate questionnaire was designed and distributed among the 376 nurses. The researchers avoided asking questions about demographic characteristics due to the sensitivity of the staff to the topic of research. Despite the three-fold proportion of female nurses compared to male ones, the participation rate of men was higher (73% vs. 27%), which indicates the conservative nature of women. Each step of the research will be described below and the related results will be presented.

In step one to identify the indices in question, articles related to the studied subject, in particular strike in hospitals and nurses, and were first drawn from databases and reviewed. Afterwards, considering the sensitivity of the issue and relevance to the researcher's thesis, a committee was formed consisting of experts from the governorate, professors of Yazd University, as well

as experts from Organization of Cooperatives, Labor and Social Welfare and hospitals who were familiar with the subject so that the indices could be discussed and finalized. According to the results of interviews, finally 47 items were identified.

After finalizing the indices, it was necessary to investigate the fitness of data to perform factor analysis in step two. Therefore, the researcher distributed 33 questionnaires to confirm the face validity, comprehensibility and reliability of the questionnaire. After the normal distribution of data was ensured, they were prepared for exploratory and confirmatory factor analysis. Finally, the numerical values of KMO (Kaiser-Meyer-Olkin) and Bartlett's test of sphericity were estimated to investigate the fitness of the data for factor analysis. Results of Bartlett's test of sphericity and numerical value of KMO showed the overall fitness of the samples for factor analysis. In addition, the significance level of Bartlett's test of sphericity ($\text{sig}=0.000$) and the numerical value of the KMO (0.899) indicated the suitability of the data to perform factor analysis.

According to step three, including the first implementation of the software, the number of

extractable factors was determined using the principal component analysis without rotation of factors. In order to determine the number of factors that should be extracted for the dataset in this analysis, the Kaiser criterion was first used. Accordingly, only factors with a specific value of ≥ 1 were accepted. Specific values of seven factors were above one that collectively explained 70.5936% of variance in data. To determine the exact number of factors for extraction, the Range and Mountain Chart (Figure 2) was also used. In Range and Mountain Chart, there were two breaks

Points: the first at point four and the second at point eight. In other words, at the first point, the three first factors and in the second point, seven factors were selected. However, given the fact that the first three factors only explained 54% of the concept, which was less than the common 60%, the first seven factors were selected. Therefore, based on both methods, the first seven factors were used to explain variance in the data.

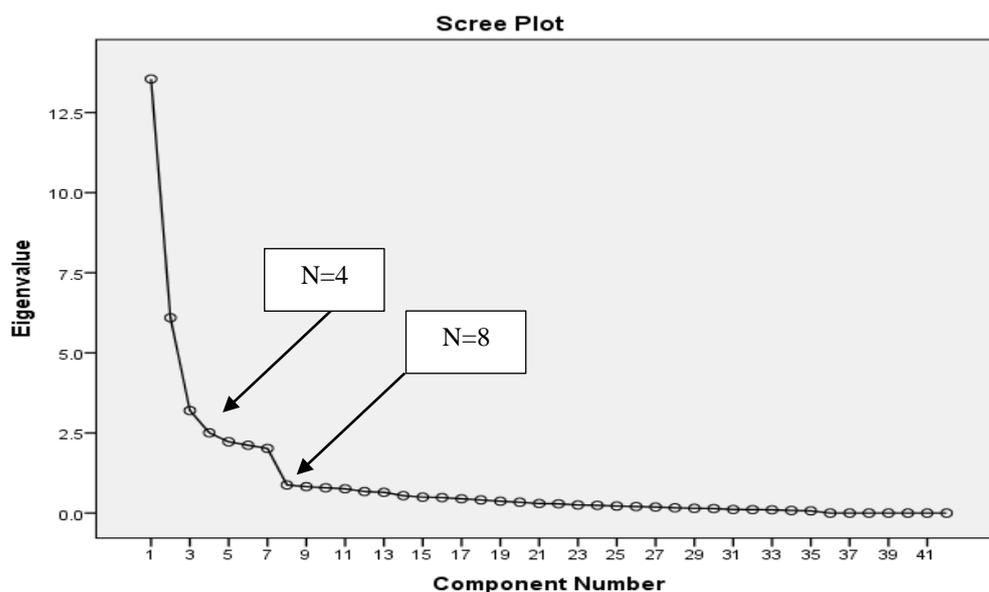


Figure 2. Range and mountain chart

Furthermore, in order to determine the type of rotation of factors (orthogonal or diagonal), factor analysis was first carried out with diagonal rotation using direct Oblimin method. The matrix of coefficients between factors indicated that none of the correlation coefficients of this matrix were above the absolute value of 0.32 and there was no reason for correlation of the factors (22).

Therefore, the rotation should be orthogonal.

According to the above result and the lack of correlation of data, factor analysis was performed with the orthogonal rotation using the Varimax method, according to which seven factors were drawn and their relationships with the 47 indices of the strikes were determined. Table 1 shows the Varimax rotation of each of the factors.

Table 1. Orthogonal rotation using the varimax method

Indexes	Dimensions						
	1	2	3	4	5	6	7
An inappropriate amount of salary and benefits received	0.821						
Lack of timely payment of benefits	0.792						
The difference in payment between different groups (classification of occupations)	0.781						
Inappropriate welfare payments	0.710						
Economic and financial crises of the country	0.680						
Poor quality of provided welfare services	0.482						
Inappropriate work environment		0.803					
Unsafe environment and protective equipment		0.751					
Failure to comply with ergonomic principles and labor medicine		0.720					
The occurrence of incidents during work		0.650					
The entrance of technology and lack of familiarity with relevant issues		0.322					
Lack of raw materials		0.311					
Lack of job security			0.782				
Downsizing			0.651				
Poor labor market			0.531				
Inappropriate employment of people			0.525				
Equipment corrosion and failure			0.206				
Inappropriate relationships among nurses				0.623			
Prolonged working hours				0.543			
Inappropriate and disrespectful treatment of nurses				0.510			
Lack of paying attention to the employees' belief values				0.470			
Hope to change and improve				0.412			
Complication of activities (lack of simple replacement of individual)					0.811		
Prolonged working hours					0.787		
Lack of control over the occupation (amount of freedom of action and authority)					0.720		
The ambiguity of the role (the uncertainty of the tasks and expectations of the individual)					0.657		
Disorganization and lack of purpose					0.623		
Lack of job promotion					0.605		
Use of non-native nurses/supervisors and directors					0.565		
Re-hiring of retirees					0.540		
Failure to meet goals and frustration					0.518		
High workload and low nurse-patient ratio					0.432		
Too much free time and no activity at work						0.714	
Repetition of unfortunate incidents and events						0.687	
						0.680	
Mismanagement						0.675	
Lack of formal communication channels						0.606	

between management and staff	
Lack of unity in the management team	0.557
Favorable conditions for rumors	0.547
External organizational stimulations	0.521
Restrictive conventions and regulations	0.506
Union strength (union size, number of member nurses of the union, union recognition)	0.680
Union relations with the employer	0.678
The atmosphere of strike in the country and empathy with it	0.670
An inappropriate amount of salary and benefits received	0.543
Lack of timely payment of benefits	0.523
The difference in payment between different groups (classification of occupations)	0.503

Some points should be taken into account about the table above. First, after the rotation, some variables with more than one factor had factor loads above 0.4, which must be assigned to the dimensions that have the highest numerical value. Another issue is that in the exploratory factor analysis, the basis for decision making, in addition to the amount of factor load, is the literature of research. The final point is that some variables, such as the introduction of technology and lack of familiarity with relevant issues, lack of raw

materials, and equipment corrosion and failure, which have relatively suitable factor loads with multiple dimensions, can be removed. Therefore, three out of the 47 initial variables were removed

In step four, it was necessary to interpret and name the identified factors. With regard to EFA and scree plot result, the relationship between each of the factors drawn and the main construct under study (strike), seven dimensions were identified (Table 2).

Table 2. Identification of factors and their clustering

Title of factors	Indices	Factors	Indices
Financial and economic	An inappropriate amount of salary and benefits received	Workplace conditions	Inappropriate work environment
	Lack of timely payment of benefits and benefits		Unsafe environment and protective equipment
	The difference in salary between different groups (classification of occupations)		Failure to comply with ergonomic principles and labor medicine
	Inappropriate welfare payments		The occurrence of incidents during work
	Economic and financial crises of the country		
	Poor quality of provided welfare services		
Job security	Lack of job security	Human behavior	Inappropriate relationships among nurses
	Inappropriate employment of people		Inappropriate and disrespectful treatment of nurses
	Downsizing		Lack of paying attention to the employees' belief values
	Poor labor market		Understanding injustice and discrimination
			Hope to change and improve

Nature of occupation	Complication of activities (lack of simple replacement of individual) Prolonged working hours Lack of control over the occupation (level of freedom of action and authority) Ambiguous roles (the uncertainty of the tasks and expectations of the individual) Disorganization and lack of purpose	Managerial	Too much free time and no activity at work Repetition of unlucky incidents and events Failure to fulfill promises Mismanagement Lack of formal communication channels between management and staff Lack of unity in the management team Favorable conditions for rumors
	Lack of job promotion Use of non-native nurses/supervisors and directors Re-hiring of retirees Failure to meet goals and frustration High workload and low nurse-patient ratio		External organizational stimulations Restrictive conventions and regulations
Underlying factors	Union strength (union size, number of member nurses of the union, union recognition) Union relations with the employer The atmosphere of strike in the country and empathy with it Lack of familiarity of nurses with work rights Failure to enforce rules Internet and cyberspace development		

Regarding the amounts obtained, economic and financial factors, working conditions and security had the highest explanatory value, so that they collectively explained 57% of the construct under study.

In the fifth step to investigate the construct validity, the LISREL software was applied for statistical confirmation of the above classification

construct validity test. With regards to the values obtained from software, t-value was more than 1.96 for all measurements, and therefore all the assumptions obtained from the exploratory model were approved. The values of path coefficients are illustrated in Figure 3.

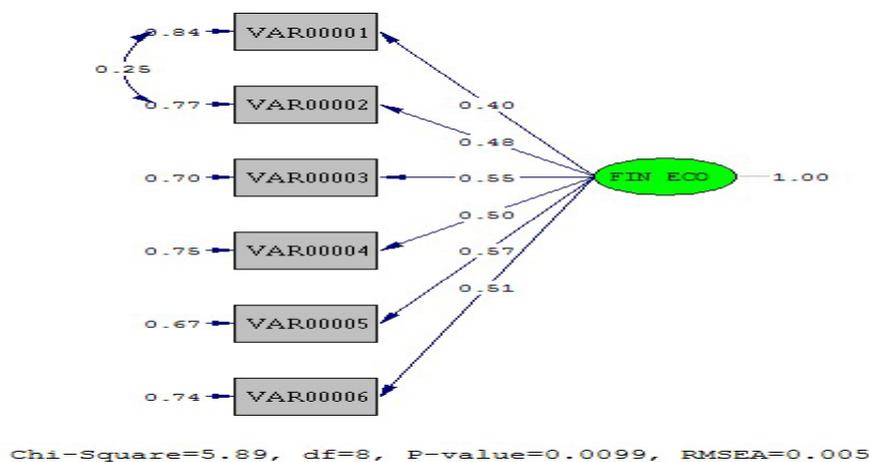


Figure 3. The level of coefficients of path of financial and economic category

According to the above Figure, the values of path coefficients were appropriate for all indices. This test was performed for each of the six other

variables, repetition of which was ignored. The fitness indices of the above model are also presented in Table 3.

Table 3. Fitness indices of research model

Fitness index	SRMR (Standardized Root Mean Square Residual)	GFI (Goodness of Fit Index)	AGFI (Adjusted Goodness of Fit Index)	NFI (Normed Fit Index)	X2/df
Result	039.0	97.0	93.0	98.0	0.73
Fitness index	RMSE (Root Mean Square Error of Approximation)	TLI (Tucker Lewis index)	CFI (comparative fit index)	IFI (incremental fit index)	RFI (relative fit index)

Discussion

The right to strike, which is rooted in human rights, has been firmly established in most countries as a system of fundamental rights and freedom. If this right is denied, other rights related to labor (forbidding of forced labor, freedom to choose a job, and trade unions) will be also affected. The best way to prevent strike is to identify the factors involved and to take precautionary measures before its occurrence. Therefore, the present study was aimed to identify factors that be known as strike-explaining factors.

The identified factors were classified into seven categories based on the data obtained from nurses and the viewpoints of experts on strike in Yazd province. Among the identified factors, financial and economic factors had the highest load in explaining the variable strike. One of the most important causes of this issue is the economic situation of the country and the disproportionate ratio of expenditure to income. In this regard, our findings are in agreement with the results obtained by Mikkelsen (23), Chang and Cooke (24), and Gose & Sadrieh (25). To justify the cause of this issue, we can use Maslow's theory. Maslow's theory of needs is one of the most famous management theories, which mostly has a human-resource attitude. According to this theory, humans are often motivated by their inner needs, unless there are obstacles in this path, such as starvation, thirst, financial, security, or any other issue. The best way to describe this issue is the pyramid of the needs of Abraham Maslow, which is called

Maslow's hierarchy of needs. He believed that, as long as the needs of the lower category were not met, it would be much less possible to address higher-level needs. The physiological needs are at the primary level (bottom of the pyramid). These needs are usually met with money, such as water, food, clothing, and housing. Therefore, this need is recognized as the most important necessity, existing in all human beings

In this research, working conditions and job security were drawn at the next steps compared to the financial and economic field, which agrees with Maslow's hierarchy of needs and could be therefore expected. Lieberman et al. (26), McKee (27), and Gourevitch (28) have also emphasized the importance of factors related to occupation and security to strike. This result is consistent with Maslow's theory and is not far from the mind.

Besed on our results, in this classification the high-level needs are met within the individual while lower-level needs are principally met by external factors (wages and salaries). In fact, the natural result that can be obtained from the classification is that almost all the low-level needs are substantially and adequately satisfied in economic prosperity and by adequate wealth, and in this case, most of the high-level needs are important (29). Hersey & Blanchard have also pointed out this issue in another way, expressing that in developed countries, the pyramid of needs is usually reversed because the needs of the first and second levels are met and do not create tension in people (29). Another theory that can be pointed

out is the Equity Theory. Adams' Equity Theory explains the intellectual process that employees use to determine the fairness of decision makers (30). This theory was derived from the Social Exchange Theory and the Cognitive Dissonance Theory.

Given the presence of nurses in the workplace where doctors, who receive significantly higher salaries, are also present, nurses' perceptions of distributive justice are low and financial issues, job security and working conditions are the most important concern leading to strike.

In the fourth step regarding the importance of factors, organizational behavior was found to be the most noticeable factor. This factor is also important in both theories expressed. In Maslow's hierarchy of needs, this need belongs to the third and fourth levels. The studies of Lopez & Mills (31) and Bordia et al. (32) also confirmed this finding. The subject of organizational behavior and appropriate relationships with staff has also been pointed out in the investigations of Elton Mayo.

Another factor that was identified in the next level in terms of importance to the occurrence of the strike is the nature of the occupation, followed by the managerial factor. Hackman (33) and Haimson & Tilly (34) have already highlighted the importance of these issues in their studies. Regarding the nature of the occupation, theories related to job design have largely explained the importance of the reason(s) for its impact on strike. In fact, redesigning an occupation is a type of strategy that has currently become increasingly important with respect to improving both the productivity and quality of the experience of employees in organizations. Given the technological and environmental changes in the nursing field, nursing profession should be reconsidered. In terms of workflow, career path, and job enrichment, a specific approach must be selected and modified to this end.

Another factor affecting strike is managerial factor. Various studies have demonstrated that mismanagement and lack of performing managerial responsibilities can play a crucial role in the occurrence of strike (34). The lack of appropriate selection of managers based on

knowledge, skills, and competencies leads to several problems in organizations in Iran. The lack of a domestic and valid model to select appropriate hospital managers and nursing supervisors is another factor that can explain the occurrence of nurse's strike. Given the fact that management in these units is in the form of notification by the high organizational levels, this factor is not able to explain the excess level of burden imposed on nurses on strike. In governmental organizations, managers do not have much authority and are usually displaced in hospitals periodically. Given that some of the hospitals included in our study are public hospitals, this result was expectable.

The final factor that was found to explain roughly 3% of the strike construct was the underlying factor. The main reason for the decrease in this factor could be the role of supportive institutions of nurses. The study of Hang et al. demonstrated that when the labor union is strong, an appropriate level of the rights of the employees will be observed through negotiation and support of workers (35).

In fact, the majority of nurses have not considered this factor to be important due to not having adequate knowledge about the laws and unions. One of the main and extensive problems of Iran is absence of unions. According to most of the institutionalists in the country, the solutions to the problems of the country and the key to development include strengthening of institutions and formation of strong unions.

Conclusion

Regarding the Iranian legal system, only the articles of labor law recognizes the right to strike. In 1964, the labor law approved the addition of a note to article 45 of this law that explicitly recognizes the right to strike. By the approval of the labor law in 1991, this right was implicitly recognized. In state service law, which mostly includes government employees (e.g., nurses in public hospitals), the issue of strike is not recognized, and even certain sentences and punishments are stipulated for this act. As observed, illegal strikes are simply known as an

administrative offense. Therefore, while the legislator is not explicitly against this right, there is no provision for its prohibition. In view of the approval of the Covenant on Economic, Social and Cultural Rights by Iran, it seems that the provisions regarding this right in article 8 of the Covenant are binding for the Iranian government.

Given the issues discussed and viewpoints expressed about the seven categories identified regarding the strike by hospital directors, human resources area must be paid special attention and measures beyond changing the name of the administrative unit to human resources or human capital must be taken. To this end, experts on this field must be employed. With regards to the problems raised in our study, managers are recommended to use a specific standard in the area of human resources as a roadmap, such as the 34000 standard. Furthermore, applying new and domestic methods for the classification of occupations and engagement of staff in this classification can help to solve the above-mentioned problems. Moreover, redesigning the occupations taking into account the indicators mentioned, analyzing the organization's occupations and determining job descriptions and qualifications, using the competency model for selecting managers and head nurses of

departments, and time and work management of various activities and responsibilities to distribute the work pressure rationally can be effective to decrease nurses strike. Managers have to use operative systems as self-service to identify different categories of employees and their needs. Since payments play a crucial role in employees strike, it is necessary for managers to set a transparent payment system and manage salary-related issues according to clear procedures. Finally, it is recommended to strengthen the unions and to familiarize employees with their basic rights.

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Conflict of Interest

The authors declare that they have no competing interests.

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