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The Relationship between Nurses' Five Personality Traits and Organizational knowledge with their Job Performance in 2016 Case Study: A Trauma Hospital

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A R T I C L E I N F O

A B S T R A C T

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Background: In today competitive world, human work force has always been a concern for organizations, especially healthcare providers, and organizations are always looking for improving their employees' job performance. Among various factors affecting job performance are two factors of organization and personality traits of the workforce. Therefore, the aim of this study was to investigate the relationship between five personality traits of nurses and the organization knowledge of their job performance.

Methods: This is an analytical study conducted in a cross sectional way in 2016. Sixty one nurses working in a traumatic hospital proportional to different wards were selected and entered the research. The instruments for collecting data were three organizational knowledge questionnaires (35 items), five personality traits (60 items), and job performance (15 items). Data were analyzed using SPSS20 and descriptive statistics and artificial neural networks.

Results: Among demographic characteristics, variables of marital status (% 16.7) and gender (% 1.5), among aspects of organizational knowledge, two dimensions of rewards (% 64.6) and leadership (% 4.3) and among aspects of Five-personality traits, accountability (% 100) and flexibility (% 11.3) had the highest and lowest importance coefficient respectively.

Conclusion: rewarding and accountability can improve nurses' job performance. Therefore, hospital managers can help to improve their nursing performance by using appropriate rewarding mechanisms, reinforcing staff accountability and employing responsible personnel.

Keywords: Job Performance, Organizational knowledge, Personality Traits, Trauma Hospital

Citation

Introduction

Today, all organizations need to assess their organizational performance for providing their customers with the highest level of customer service and their own improvement and success. Meanwhile, the health sector is not separated from this category (1). One of the healthcare sector components is traumatic hospitals. The World Health Organization estimates that the main cause of death around the world between the ages of 15 and 45 is traumatic injury in both groups of women and men, and if this trend continues until 2020, the trauma is the third leading cause of disability and death in all age groups (quoted by Shakeri et al.) (2). The proper treatment of a patient with trauma and receiving quality services is one of the most important factors in preventing traumatic death. Therefore, it is clear that the human resource performance in the trauma domain can be effective in therapeutic outcomes of clients referred to these centers.

Various definitions of workforce performance have been provided in various sources. For example, Kenny (1996) states that performance is a process that a person does not pay attention to and it is separated from the goal (3). Bernadine argues that performance should be defined as work outcomes, as these results will have the strongest relationship with customer satisfaction, organization strategic goals and economic participation (4). Job performance refers to degrees that employees do their jobs according to what they have been assigned under certain working conditions (5, 6). In general, job performance is the interaction of three individual-organizational variables including skill, effort, and the nature of working conditions. The optimal combination of these variables can increase the level of job performance (7, 8).

Among all elements of the health system, nurses as the biggest and the most important source of health care organizations are of great importance in promoting the community health, so much that hospitals cannot succeed without

efficient nursing staff and the performance of this group has a direct impact on health care efficiency (9, 10).

Therefore, the study of organizational, individual and social factors can be a starting point to find factors that affect the behavior of doctors and nurses (11). The research report indicates that several factors affect the level of nurses' performance, such as job satisfaction, organizational commitment, level of education, experience, nurses' mood, stress and work-related work burn-out, support from colleagues, supervision and support feedback, training in clinical tools , knowledge, job expectations, working environment, motivation, knowledge, skills, promotion, reward and level of competence (12). However, among all factors affecting job performance, two factors of personality traits and intra-organization environment are of particular importance (13, 14). Individual personality can play an important role in job performance, since it determines the individual's motivation and attitude toward the job and how to respond the career needs (15). Personality trait means different personality characteristics of a person that is stable and defined according to patterns, behaviors, cognition and emotions (16). Paul Costa and Robert McCrey used five factors in relation to the personality, namely: neurosis, extroversion, flexibility, friendliness and accountability (17). By the mid-1980s, research did not find a meaningful relationship between personality traits and job performance; however, consistent with the development of personality exploration theories and models, new research has shown that personality traits are the most important predictors of job performance (18-20).

Another factor in achieving productivity and improving the performance of organizations is to provide an environment in which these factors are balanced (20). The hospital internal environment includes such things as the management system, staff training and improvement, supportive supervisions, rewards,

customer satisfaction, equipment, information and information and counseling systems, each of which can somehow affect the job performance of employees (21, 22).

Artificial neural networks like the bio-neural network are comprised of computational units called neurons. Each neuron is connected to another neuron by a directed relation having a particular weight (23). These networks act as models of information processors by modeling biological neural networks and simplify human perceptual systems in the form of mathematical functions and equations (24). These networks are very useful for examining complex relationships between input and output variables (25). The ability for parallel processing and the possibility of outsourcing stored information to generate outputs that are not introduced the network during the learning process are two basic points in artificial neural networks. With the help of these two features, nerve networks can somehow solve complicated problems (26). Some merits of these networks are learning power, flexibility, adaptation and knowledge discovery (27). Many studies have confirmed the superiority of artificial neural networks compared to other statistical methods (28). Since artificial neural network approach unlike classical methods has the ability to study the relationship between a large number of independent and dependent variables, which is one of the characteristics of this study, this method was used. Accordingly, this study was conducted with the aim of investigating the relationship between five personality traits of nurses and knowledge of organization with their job performance using artificial neural networks in 2016.

Materials and Methods

The aim of this analytical-cross sectional study was to investigate the importance of the variables of personality traits and internal organizational environment on nurses' job performance, which was performed in Shahid Rahnamoun Hospital of Yazd in 2016. All nurses working in hospitals (162 patients) were considered as the research community. The criterion for participating in this study was having at least one year of working experience in the hospital (in order to better understand the environment of the internal organization). The criterion to leave the study was nurse's occupation in the operating room (due to the high sensitivity of the ward and the rules for participation). Sample size in this study was calculated to be 61 by using Cochran formula and according to similar articles (29), and proportional to the number of nurses assigned for each ward, simple random sampling method was used for collecting data. The response rate to the distributed questionnaires was 100 percent. The tools for collecting data were three questionnaires: personality traits, organization knowledge, and performance evaluation, which validly and reliably have been confirmed in previous studies (30-32).

Five personality trait questionnaires were presented by Costa and McCrae, in which five personality traits including neurosis, extroversion, flexibility, friendliness and accountability are examined (33). Each of these features is measured by 12 questions and in total, this questionnaire has 60 questions. The answers are based on a five point Likert scale from totally agree (highest score) to totally disagree (the lowest score).

Organization knowledge Questionnaire was also designed by Weisbourt, in which six aspects of knowledge of the internal environment of organizations including setting goals, organizational structure, leadership, communications, rewards, and helpful mechanisms are studied. The seventh dimension of attitudes toward change also allows the counselor to assess the readiness of the organization to accept the changes (34). Each dimension of this questionnaire has 5 questions. In total, the questionnaire is 35 years old. The answer to this questionnaire is in the form of a 7 point Likert scale, and includes I totally agree (the highest score) to I totally disagree (lowest score). The job performance questionnaire was

prepared by Patterson and translated by Seniority and Sugar CRM (quoted by Aslanpur Jokandan et al.) (32). This is a one-dimensional questionnaire and examines job performance with 15 questions. The answer to this questionnaire is based on a 5 point Likert 5 scale from always (Highest Score) to Never (Lowest Score). Demographic characteristics were also asked in a separate questionnaire from the research sample. Data were analyzed using SPSS20 software and descriptive statistics (to extract frequency of dimensions) and artificial neural networks (to extract importance coefficients). This study was approved by the code IR.SSU.SPH.REC.2016.1 at Shahid Sadoughi University of Medical Sciences and Yazd.

Results

Among the nurses, two groups of 30-34 years old and 40 years old had the highest and the lowest incidence among the age groups (%22.2 vs. %8.5). Regarding the type of recruitment, official employees (18.6%) and corporate employees (%3.4) had the highest and lowest percentage of employment among different types of employment. Furthermore, 96.6% of the respondents had undergraduate education and only 3.4% had graduate education. Among the investigated sections, neurosurgery and ICUs had the highest and lowest number of neurons in the sample size (%16.9 vs. %5.1). In addition, 59.3% of the respondents were women and 18.6% of them were men. In occupational groups, 22.2% of the respondents had a job history of 5 to 10 years and %1.7 had a job record of more than 26 years. Furthermore, % 59.3 of the respondents were married (Table 1).

Table 2 shows the mean score and standard

deviation of organizational knowledge dimensions and five personality traits. As shown in the table, among dimensions of organizational knowledge, two dimensions of goal (0.84 ± 4.64) and rewards (0.95 ± 3.88) were respectively the highest and the lowest mean scores. Furthermore, the total average score was 1.04 ± 4.36. In assessing dimensions of five personality traits, accountability (42.27 ± 5.45) and neurosis (33.09 ± 4.9) were the highest and the lowest mean scores respectively. Also, the total average score of 14.99 ±187.94 was reported.

In this study, the mean score and standard deviation of job performance was 12.92 ± 63.25.

Table 3 reveals demographic characteristics, dimensions of the five-personality traits and organizational environment dimensions in relation to job performance. The results of demographic characteristics show that marital status (16.7%) and gender (1.5%) have the highest and the lowest significant coefficients respectively. In examining dimensions of the five personality traits, accountability (100.1%) and flexibility (11.3%) had the highest and the lowest significant coefficients respectively.

Finally, dimensions of rewards (64.6%) and leadership (3.4%) of internal organization environment, respectively, received the highest and lowest importance coefficients.

Chart 1 represents the ranking of effective factors on nurses' job performance. As shown, the dimensions of accountability and gender respectively have the highest and lowest importance on the nurses' job performance.

Chart 2 indicates the total score of factors affecting nurses' job performance. As shown, five personality traits and gender, respectively, have the highest and lowest importance on nurses' job performance.

Table 1. Respondents Demographics Frequency and Percentage

Features		Number	Percent
Age	25-29	10	16.9
	30-34	13	22.0
	35-39	10	16.9
	40-44	6	10.2
	<45	5	8.5
	unspecified	15	25.4
	Total	59	100.0
Employment Type	Permanent	11	18.6
	Contract-based	7	11.9
	Quasi contract-based	5	8.5
	leased	2	3.4
	Based Plan	4	6.8
	Unspecified	30	50.8
Educational background	B.S	57	96.6
	M.S	2	3.4
Ward	emergency	6	10.2
	dialysis	6	10.2
	ICU neurology	3	5.1
	orthopedic	7	11.9
	Eurology	9	15.3
	CCU	5	8.3
	General ICU	5	8.5
	neurosurgery	10	16.9
	Operation 3	4	6.8
	VIP	4	6.8
Gender	woman	35	59.3
	man	11	18.6
	Unspecified	13	22.0
Work experience	5<	6	10.2
	5-10	13	22.0
	11-15	10	16.9
	16-20	3	5.1
	21-25	8	13.6
	Unspecified	19	32.2
Marital status	single	10	16.9
	married	35	59.3
	unspecified	14	23.7

Table 2. Mean score and standard deviation of organizational recognition dimensions and personality traits

Knowledge of organization	dimensions	Attitude toward change	Setting goals	Organizational structure	leadership	communications	rewards	Useful mechanisms	Total score
	The mean of standard deviation ±	4.38 ± 0.91	4.64 ± 0.84	4.40 ± 0.73	4.43 ± 0.72	4.53 ± 1.05	3.88 ± 0.95	4.24 ± 0.82	4.36 ± 1.04
Five personality traits	dimensions	neurosis		extroversion	flexibility	friendliness		accountability	Total score
	± the mean of standard deviation	33.09 ± 4.09		37.89 ± 3.98	38.03 ± 4.25	36.64 ± 4.99		42.27 ± 5.45	187.94 ± 14.93

Table 3. Weight of demographic characteristics, dimensions of five personality traits and organizational knowledge in relation to job performance

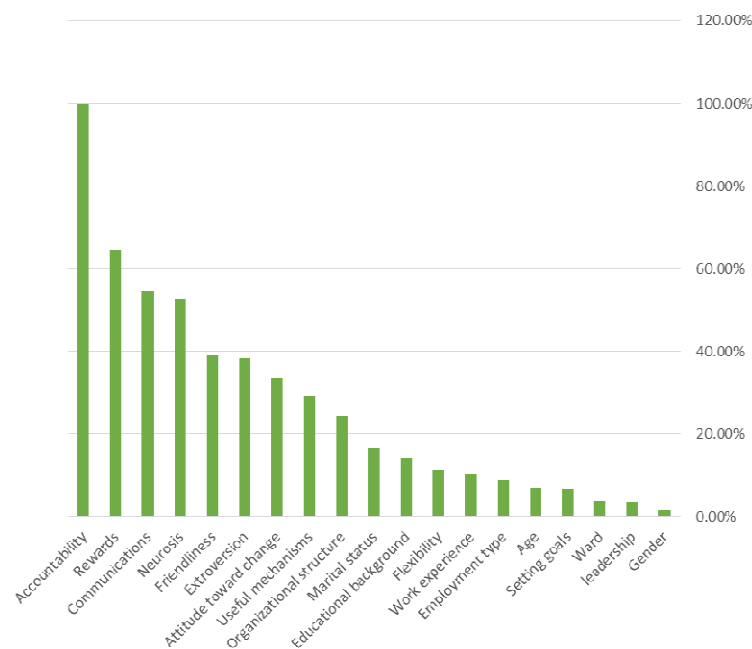| Demographic characteristics	dimension	age	Employment type	Educational background	Work unit	gender	Work experience	Marital status
	weight	7.0%	8.9%	14.1%	3.7%	1.5%	10.4%	16.7%
Knowledge of organization	Dimension	Setting goals	Organizational structure	leadership	communications	rewards	Useful mechanisms	Attitude toward change
	Weight	6.8%	24.4%	3.4%	54.7%	64.6%	29.3%	33.5%
Five personality traits	dimension	neurosis		extroversion	flexibility	friendliness	accountability	
	weight	52.8%		38.3%	11.3%	39.3%	100.0%	

Chart 1. Ranking Factors Affecting Nurses' Job Performance
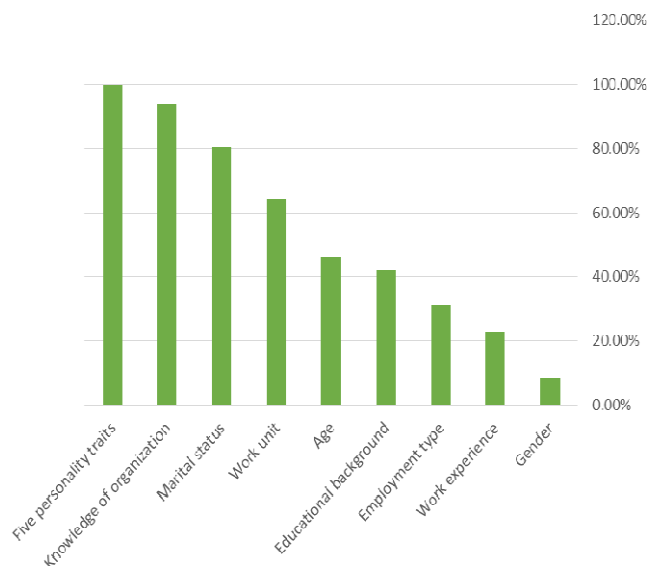
Chart 2. Ranking the total score of factors affecting nursing job performance

Discussion

Achieving the highest level of performance is the goal of any organization. In order to achieve this, it is necessary to improve the performance of the staff in the organization. This is important in service organizations like hospitals, because their final performance depends heavily on the performance of their workforce. Among the active staff in the hospital, nurses are more important because of the close relationship with the patient. On the other hand, among factors affecting job performance, two factors of internal organization environment and personality traits are of the most importance. Therefore, this study was conducted to determine the status of internal organization environment and five personality traits and their relationship with job performance of nurses in hospitals in Yazd using artificial neural networks in 2016. The results of this study showed that among demographic variables studied, marital status and gender, respectively, had the highest and lowest importance on nurses' job performance. Furthermore, comparing all dimensions and variables of the study indicated that five variables of personality traits, organization knowledge and demographic characteristics, were the most important on nurses' job performance. Also, dimensions of

accountability and gender, respectively, are of the highest and the lowest importance.

In examining dimensions of the five-personality traits, accountability and flexibility have the highest and the lowest importance in nurses' job performance, and accountability have the highest average score among the dimensions. Some research studies on the effect of personality traits on job performance showed that the more the individual and his profession fit, the better the organization can match them to their jobs (40). In a study on 174 supervisors, Kent and Gintowat (35) showed a significant relationship between extroversion and job performance. Another research showed that extraversion and emotional stability are the predictors of European senior managers' performance (36).

Var and his colleagues (37) in a study on occupations involving interpersonal interactions showed that extroversion and accountability had the highest correlation, and flexibility and friendliness had the lowest correlation with job performance. As the results of the research show, paying attention to accountability is an important factor in improving the level of nursing staff performance. Therefore, it is imperative that managers not only create a space for enhancing this feature, but also employ nurses with high levels of accountability in the organization. The

study has shown that in specialized selections, considering the relationship between job success and personal characteristics is essential (38). Furthermore, another study showed that the more motivated the person is to serve, the more likely he is to do his job and perform better (39).

The results of this study on comparing dimensions of organizational knowledge variable showed that dimensions of rewards and leadership respectively had the highest and lowest importance in job performance of nurses and the best situation is related to rewards dimension. Research endeavors on the impact of organizational environment on job performance have shown that organizations, according to their private or public nature, can hope to improve the performance of their employees through material rewards or, advancing the community goals (40). In his study, Branchley sees good rewards as one of the five components of organizational atmosphere that can be effective in the success of the organization. A research has shown that organizations can influence nursing job performance by making changes in the workplace (42). Another study showed that increased social support and stronger communication between nursing staff could lead to an increase in their job performance. (43). As the results of this study also show, reward management in the organization is important and can motivate employees to boost their performance levels. In analyzing the findings from evaluation of the internal environment of hospitals, it can be concluded that since rewarding has a significant effect on employee's performance level, managers should use cash and non-cash strategies and

consider an appropriate performance evaluation mechanism to improve the rewarding dimension at this hospital.

Conclusion

Since personality and especially accountability are factors affecting nurses' job performance, it is suggested that, while paying attention to this aspect of the management, the personality traits of nurses before being admitted to the organization be evaluated and the best choices with the highest level of accountability be selected. Furthermore, since rewards are a definite and proven tool that motivates employees and improves their performance and has had the most impact on nurses' job performance in this study; therefore, proper planning in this regard is crucial for hospital.

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Conflicts of interest

The authors declare that there is no conflict of interest.

Authors' contributions

Khanjankhani Kh, Shafii M, and Askari R designed research; Khanjankhani Kh conducted research; Askarishahi M analyzed data; and Khanjankhani Kh, Shafii M, and Askari R wrote the paper. Shafii M had primary responsibility for final content. All authors read and approved the final manuscript.

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