

Relationship Between Productivity and Burnout in Nurses of Military Hospitals in Tehran

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Background: Due to nurses' important role in patients' quality of care and health promotion, it is vitally important that nurses remain productive. Undoubtedly, burnout is one of the factors that has the greatest effect on productivity. If the strong relationship between burnout and productivity is proven, then managers can be encouraged to provide better conditions for nurses to be more productive.

Objectives: The current study was conducted to investigate the relationship between productivity and burnout in nurses of the Aja Hospitals in Tehran.

Materials and Methods: This cross-sectional study was carried out on 322 clinical nurses working in Aja Hospitals in Tehran. The subjects were recruited by multi-stage sampling methods in 2012-2013. Data was collected using the Persian version of the productivity questionnaire which was prepared by Nayeri et al. and the Maslach Burnout Inventory, which was then analyzed by SPSS software Version: 19, IBM Company.

Results: The findings showed that many nurses (35.1%) obtained a high productivity score. From the viewpoint of burnout intensity, the majority of nurses (85.4%) were at medium to high levels in the dimension of emotional exhaustion. Moreover, most (79.8%) obtained high scores in the dimension of depersonalization. In the dimension of personal accomplishment, 61.5% of nurses felt little success. Pearson's correlation coefficient indicated a weak statistical reverse relationship between total productivity score and burnout dimensions ($P < 0.001$).

Conclusions: Based on the high levels of burnout found in this study, greater awareness and knowledge of the contributing factors are essential in order to increase nurses' productivity. Formulating policies in order to remove these contextual factors, prophylaxis, treatment and training methods, and adaptive coping strategies, are also required.

Keywords: Burnout, Professional; Nurses; Productivity; Iran

1. Background

One of the main objectives for every organization is to increase its productivity. To reach this goal, there is no option except to resort to a systematic, local and applicable perspective (1). Productivity is a general and comprehensive concept, but increasing it is considered by politicians, economists and governing bodies as a necessity in order to promote; quality of life, improve welfare, and benefit society (2). At national and international levels, competition is only possible through increased productivity and this in turn increases society's standards of living. However, as a result, people insist on better services from governmental organizations. In response to these demands higher levels of achievements need to be reached, but often with fewer resources. By increasing productivity, governmental organizations are able to improve their ability to deliver quality social services

and develop more effective and efficient plans (2). In fact, the creation of productivity cultures creates better use of physical and spiritual facilities in organizations (3). In this regard, hospitals are one of the most important organizations, as they deliver health-care services and play an important role in the; preservation, return and promotion of their clients' physical and psychological health (1). Increasing productivity, prudent use of limited resources and exact evaluation of the quality of services required to fulfill, protect and promote patients' health in hospitals, are important missions of medical centers (4). Researchers believe that attaining ongoing productivity, creativity, innovation and suitable life quality, is dependent on committed, intelligent, effective and efficient human resources and management (5). Effective human resource management is the main factor for the

Implication for health policy/practice/research/medical education:

These findings could be applicable in educational, clinical or management situations. Efforts to decrease burnout and increase productivity among nurses should lead to increased quality of patient care and improved quality of work life for nurses, which could potentially save health-care organizations billions of dollars annually.

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continuity, success and goal attainment in organizations. In this regard, the productivity of nursing staff is very important, because nurses carry the main responsibility for care quality and health promotion of their clients (6). Nurses represent the largest fraction of healthcare professionals, with more than 2.6 million nurses in the United States (US) alone, and they are at the frontline for direct patient care in hospitals (7). In the US between 2003 and 2011, the number of employed registered nurses (RNs) increased from 2,449,000 to 2,724,570, an increase of 10.1%, and it is predicted that the employment of RNs will grow to 26% from 2010 to 2020, faster than the average for all other occupations (8). In 2008, approximately 90,000 nurses were working in Iran's health-care system (9). Nurse groups influence the productivity and progress of organizations more than any other group. Of course, no health-care organization can survive without an efficient nursing unit (6, 10). Furthermore, the current auditing processes which insists on cost-effective nursing care with the same or fewer numbers of personnel, in addition to progress in productivity, is considered to be the basic responsibility of nursing managers (10). Researchers believe that if the nursing profession desires to survive financially and professionally; finding strategies which state the productivity and related issues in an organizational context, are essential (10). Studies indicate that decreasing productivity results in; losses of income, inflation, unemployment, lower life quality, and decreases in social safety. Whereas, increasing productivity creates the best use of an organization's physical and moral resources, and as a result it makes the best of the organization's potential abilities, talents and facilities, which allows it to; flourish and increase wages, reduce the price of products and services, attain higher living standards, create greater benefits, increase economic development, ensure its survival and enhance organizational accomplishments (11). Lack of a productive, healthy work environment has been related to nursing shortages, poor quality of working life, job dissatisfaction, low productivity, poor quality and unsafe patient care practices (12). In addition, recent researches have highlighted the increasing growth of burnout and psychological disorders, especially depression and anxiety, in health-care staff like nurses (13-22). Studies have shown that health-care staff face more issues when compared to other types of employees, which results in declining job function and creates psycho-social problems. As a result, burnout due to confronting stresses such as; the death of a patient, caring for patients with complicated care needs, intrapersonal problems, little social support, high work pressures, absence of job security, low salary and privileges, dealing with large numbers of patients each day, making decisions in emergency situations based on insufficient information and being responsible for the outcomes of those decisions, mental pressure for avoiding mistakes, confronting the threat of violence at work, and working

night shifts, are common experiences (17, 22, 23).

Burnout is one of the main professional issues which imposes noticeable expense on organizations (22). Evidence has shown that burnout is strongly linked to nursing turnover, which has led to the current nursing shortage. This shortage remains ongoing and estimates for the shortage by the year 2020 range from 340,000 to 1 million. Furthermore, inadequate nursing levels caused by excessive turnover have been significantly associated with nursing errors and poorer patient outcomes (7). According to Aiken et al. 29% of nurses in the US state of California experienced high burnout, compared with 34% of nurses in New Jersey and 36% of nurses in Pennsylvania (8). Also, burnout is a significant contributor to job satisfaction which needs to be decreased in order to improve job satisfaction (16). Studies have revealed that one in five nurses leave their job due to dissatisfaction, notably burnout and stress (15).

Moreover, studies have indicated that decreasing energy levels and work efficiency (20, 21), increasing absences at work, opting to leave the profession (2, 13, 20-25), continuous delays (13), increasing health expenses, behavior and physical changes like feeling tired, headaches, gastro-intestinal problems and sleep disorders (13), addiction (20), anxiety and depression, and intrapersonal conflict (23, 24), can cause burnout in health-care staff such as nurses. Thus resulting in decreases in the quantity (26) and quality of caring for patients and consequently patients' dissatisfaction (13, 14, 20-22, 25). Evidences have indicated that the diagnosis and prevention of burnout can play an active role in promoting an individual's psychological health and improve their quality of services (20); therefore, social support, managerial and occupational systems can decrease burnout and improve the psychological health of staff by reducing occupational tensions (23).

In all probability, burnout is one of the most important and effective factors on the productivity of nurses (6). Some studies have indicated that emotional exhaustion (EE) and depersonalization (DP) had a significant negative relationship with nurses' productivity. In addition, there was a significant positive relationship between personal accomplishment (PA) and productivity in nurses (27). Some studies have reported that job stress is associated with decreased work productivity (18). While other evidence has shown that lack of human resources results in the creation of; severe stress, burnout, reduction of productivity, lower quality of patient care and finally in patient dissatisfaction (9).

In Iran, the productivity of nurses, which consists of the majority of health care staff, has been one of the major issues for health system managers in recent years and in this regard, they have appealed to the government to take certain actions such as privatization (28). Numerous researches have also reviewed nurses' burnout levels (17, 27, 29-36). If the relationship between burnout and pro-

ductivity becomes apparent, managers can then provide conditions for the nurses to be more productive. Despite the studies which have been performed on productivity and burnout of health care staff, a range of different results have been reported.

2. Objectives

Whereas, the mission, issues, needs and culture in Aja Hospitals are different from other hospitals, the current study was conducted to investigate the relationship between productivity and burnout in nurses of Aja Hospitals in Tehran, Iran.

3. Materials and Methods

In a cross-sectional (descriptive-analytical) study, 322 clinical nurses working in Aja Hospitals of Tehran, in both general and special units on different shifts, were recruited with multi-stage random sampling in 2012-2013. In order to determine the sample size, with approximate estimate error and significance level of 0.05, (α : 0.05), and d : 0.44 (29), 297 subjects were essential for this research. A total of 380 questionnaires were submitted to nurses, and the amount of attrition was 15%. The research hypothesis was that there is a correlation between productivity and the burnout of nurses.

The data collection tool was a questionnaire consisting of three parts. The first part of the questionnaire, prepared by the researcher, was related to personal characteristics including; age, sex, education, marital status, work shifts, overtime working hours, having a second nursing job, experience of absence at work, experience of quitting the job, and scheduling according to the nurse's request, while the second and third parts of the questionnaire were a productivity questionnaire and Maslach's burnout inventory (MBI).

In this research, a productivity questionnaire, which was prepared by Nayeri et al. and based on the viewpoint of Iranian nurses, was used. This questionnaire had 22 items and 4 dimensions (effectiveness, efficiency, commitment and presence for patients) on a five-point Likert scale; 1- completely disagree, 2- disagree, 3- neutral, 4- agree, 5- completely agree). It consisted of; 5 items for effectiveness, 7 items for efficiency, 7 items for commitment and 3 items about presence for patients. The range of scores was 22 to 110, and higher scores indicated greater productivity. Item level of content validity indexes (CVIs) represented the percentage of experts' rating for each relevant item and the scale level of the CVIs. The face and content validities of the scale were confirmed. The CVI of the items has been reported to be between 0.9 and 1 and Cronbach's alpha for the reliability of this questionnaire was 0.84 (6, 27).

The MBI is the most current tool for burnout measurement and it includes 22 items and consists of DP, EE, and PA that are ranked from 0 (never) to 6 (every day). There

are 9 items for EE, 5 items for DP and 8 items for PA. The subscale scores are low, medium and high (17, 20, 27). Internal reliability of the original questionnaire has been reported to be 0.71 to 0.90 by a Cronbach's alpha and 0.60 to 0.80 by test-retest (14, 20). In addition, Maslach and Jackson evaluated the validity of this questionnaire as high (20). Iranian researchers translated this tool and reported its reliability coefficient to be 0.73 to 0.86 by test-retest (17, 22), and between 0.86 (17) and 0.96 (27) by Cronbach's alpha with a validity of more than 0.90 (20). The following scores show the ranking procedure of this tool: EE: high (> 40), medium (26-39), low (< 25); DP: high (> 15), medium (7-14), low (< 6); PA: low (< 36), medium (37-43), high (> 44) (17, 29, 33).

Finally, the data was analyzed using the SPSS version 19 IBM Company. Descriptive statistics (frequency, percentage, mean, standard deviation) were used to summarize the data. Pearson's and Spearman's correlation coefficients were used to analyze the quantitative variables (e.g. dimensions of burnout, age, educational status and scheduling according to the nurse's request) with a total score of productivity. Chi-square test was used to analyze the nominal and stratified variables. Statistical significance was considered as $P \leq 0.05$.

This research was approved by the Research Council of the Aja University of Medical Sciences. Data collection was carried out after obtaining verbal informed consent from the nurses, in accordance with the Helsinki Declaration (37). The purpose of the research was explained to the nurses, the code of confidentiality in publishing the information was observed, the subjects were free to withdraw from the study at any time and the rights of the authors in using printed and electronic texts ethic codes were observed in this research.

4. Results

The mean age of nurses was 30.95 ± 5.86 years (range: 18-49 years). About one third of them (31.9%) aged between 30-35. In total, 51.2% of the nurses were male, 84.5% held a bachelor degree and 72.7% were married. Most of the subjects (74.5%) were working in fixed shifts and 60.6% of them worked overtime. In addition, 27% of the subjects worked as nurses in other hospitals, and 22.7% had a non-nursing second job. About one fifth of them (19.6%) had the experience of quitting the job, and 20.8% had the experience of absence at work. About 40% of nurses felt dissatisfied with their scheduling. In their productivity, most nurses (48.1%) reported very high effectiveness. Moreover, the majority (52.5%) obtained desirable and very desirable scores in the commitment dimension. In the dimension of presence for patients, 47.2% of nurses also received a very desirable score. The mean of the productivity total score was 86.11 ± 19.15 (Table 1). Findings showed that most nurses (35.1%) obtained a high productivity score.

From the viewpoint of intensity of burnout, the majority of nurses (85.4%) were at medium to high level in EE dimension. Also, most (79.8%) obtained high scores in dimension of DP. In the dimension of PA, 61.5% of nurses felt little success (Table 2).

The Pearson's correlation coefficient indicated a weak reverse relationship between the total productivity score and different burnout dimensions ($r = -0.2$; $P < 0.001$) (Tables 3, 4 and 5). Furthermore, the X^2 test showed a significant relationship between all productivity dimensions and all burnout dimensions except between the efficiency and honesty of nurses and their DP ($P < 0.001$). The correlation between the total productivity score and EE in nurses is shown in Table 3.

The correlation between the total productivity score and DP in nurses is shown in Table 4. The correlation between the total productivity score and PA in nurses is shown in Table 5. The correlation between productivity and individual characteristics of subjects is shown in Table 6.

Table 1. Distribution of Dimensions of Productivity in Subjects

Dimensions	f	%	Mean ± SD
Effectiveness			19.87 ± 4.62
Low (≤15)	49	15.2	
Medium (16-18)	44	13.7	
High (19-21)	74	23.0	
Very high (22-25)	155	48.1	
Efficiency			27.83 ± 6.36
Low (≤24)	68	21.1	
Medium (25-28)	65	20.2	
Desirable (29-32)	118	36.6	
Very desirable (33-35)	71	22.0	
Commitment			27.13 ± 6.82
Low (≤24)	86	26.7	
Medium (25-28)	67	20.8	
Desirable (29-32)	92	28.6	
Very desirable (33-35)	77	23.9	
Presence for patients			11.28 ± 3.17
Low (≤6)	35	10.9	
Medium (7-9)	61	18.9	
Desirable (10-12)	74	23.0	
Very desirable (13-15)	152	47.2	
Total productivity			86.11 ± 19.15
Low (< 80)	90	28.0	
Medium (81-90)	56	17.4	
Desirable (91-100)	113	35.1	
Very desirable (> 100)	63	19.6	

Table 2. MBI Rankings of Nurses

Dimensions Rank	EE ^a		DP ^a		PA ^a	
	f	%	f	%	f	%
Low	47	14.6	27	8.4	198	61.5
Medium	143	44.4	38	11.8	43	13.4
High	132	41.0	257	79.8	81	25.2
Mean ± SD	37.67 ± 13.15		19.54 ± 8.20		34.42 ± 11.00	

^a Abbreviations: EE, emotional exhaustion; DP, depersonalization; PA, personal accomplishment.

Table 3. Correlation Between Productivity and Emotional Exhaustion

Productivity	Emotional Exhaustion ^a					
	Low		Medium		High	
	f	%	f	%	f	%
Low	18	38.3	24	16.8	48	36.4
Medium	15	31.9	23	16.1	18	13.6
High	13	27.7	66	46.2	34	25.8
Very high	1	2.1	30	21.0	32	24.2
Total	47	100.0	143	100.0	132	100.0

^a Correlation P value: $X^2 = 36.36$, $P = 0.000$ ($P < 0.05$), $r = -0.21$, $P = 0.000$.

Table 4. Correlation Between Productivity and Depersonalization

Productivity	Emotional Exhaustion ^a					
	Low		Medium		High	
	f	%	f	%	f	%
Low	9	33.3	16	42.1	65	25.3
Medium	9	33.3	8	21.1	39	15.2
High	8	29.6	11	28.9	94	36.6
Very high	1	3.7	3	7.9	59	23.0
Total	27	100.0	38	100.0	257	100.0

^a Correlation P value: $X^2 = 17.04$, $P = 0.009$, $r = -0.21$, $P = 0.000$ ($P < 0.05$).

Table 5. Correlation Between Productivity and Personal Accomplishment

Productivity	Emotional Exhaustion ^a					
	Low		Medium		High	
	f	%	f	%	f	%
Low	43	21.7	9	20.9	38	46.9
Medium	41	20.7	6	14.0	9	11.1
High	78	39.4	20	46.5	15	18.5
Very high	36	18.2	8	18.6	19	23.5
Total	27	100.0	38	100.0	257	100.0

^a Correlation P value: $X^2 = 27.13$, $P = 0.000$ ($P < 0.05$), $r = -0.20$, $P = 0.000$.

Table 6. Correlation Between Productivity and Individual Characteristics of Subjects

Variable	Test	Correlation Coefficient, P Value
Age	Pearson's correlation coefficient	r = 0.001, P = 0.992
Sex	χ^2	Eta value = 0.193, P = 0.831
Educational level	Spearman's correlation coefficient	r = -0.016, P = 0.772
Marital status	χ^2	Eta value = 0.110, P = 0.806
Working shift	χ^2	Eta value = 0.138, P = 0.264
Work overtime	χ^2	Eta value = 0.192, P = 0.237
Having a second nursing job	χ^2	Eta value = 0.387, P = 0.000 ^a
Experience of quitting the job	χ^2	Eta value = 0.447, P = 0.000 ^a
Experience of absence of work	χ^2	Eta value = 0.444, P = 0.000 ^a
Scheduling according to the nurse's request	Spearman's correlation coefficient	r = 0.243, P = 0.000 ^a

^a P < 0.05.

5. Discussion

The purpose of the current research was to investigate the relationship between productivity and burnout of nurses in Aja Hospitals, in Tehran. The results indicated that the productivity mean of the nurses was high at 86.11 ± 19.15 . In a study of 200 clinical nurses at Tehran University of Medical Sciences (TUMS) in 2006-2007, their productivity mean was 151.25 ± 18.25 and 33.5% of nurses had medium or 5.5% low productivity (38). In another research 360 clinical nurses of TUMS were studied, and about one third (30%) of them had medium levels of productivity (6). There was also a study of nurses in the hospitals of Shahid Beheshti University of Medical Sciences which reported medium levels of productivity (39). The reason for these differences may be the result of differences between study populations, tools and scoring methods.

In this present research, most nurses had very high levels of effectiveness and the majority of them were at desirable and very desirable levels in the dimension of efficiency. These findings were in agreement with the results of a research by Nayeri et al. These researchers reported the effectiveness of most nurses (41.1%) to be desirable (6). They also reported that 68.9% of nurses were at desirable and very desirable levels in the efficiency dimension (6). In the current research, a total of 28.6% of the nurses obtained desirable, and 23.9% very desirable scores, in the commitment dimension. In a research carried out by Nayeri et al. 39.4% of the subjects obtained medium and 28.1% desirable scores (6), which shows that the nurses' status in the current research is better in this dimension. In the present research the majority of nurses (47.2%) obtained very desirable scores in the dimension of presence for patients indicating that they had better conditions in comparison with the above-mentioned research. In a research by Nayeri et al. most nurses (36.7%) had a medium score (6).

Burnout is one of the occupational dangers which has

been the center of attention in recent years. Burnout is seen more often in jobs where employees are in frequent contact with many people such as nursing (14). In the current study, the mean of EE, DP and PA were at medium, high and low levels, respectively. Other studies conducted in Iran on different nursing groups found similar results. These studies have reported the mean of EE and PA at medium and low levels respectively (14, 17, 20, 29, 40). On the other hand, other studies have reported the mean of DP from low (14, 29, 40) to medium (17, 20), and PA at medium levels (14, 20, 40). In other countries, the EE of nurses varied between (12.9 ± 7.5) (34) and (31.5 ± 9.1) (32), DP between (4.0 ± 5.1) (41) and (13.1 ± 5.0) (32), and PA between (31.1 ± 10.5) (35) and (43.4 ± 2.9) (32).

In the current study, most nurses in EE were at medium to high levels; in DP at a high level and in PA at a low level. Other studies have obtained similar results. Investigations have reported that most Iranian nurses were at medium (21, 42) to high (19) levels in EE, and at medium (27) to high (13) levels in DP. Most studies have reported the PA of nurses at low levels (13, 20, 27, 43), and the results of these studies are in the same direction as this study. Several studies have indicated opposite results, with most nurses at low (28, 43) levels in EE and at low (28, 43) to medium (21) levels in DP, which are not in line with the results of the present study.

As was previously pointed out, most nurses in dimensions EE and DP were at medium to high levels and considering the stressful work environment of this group of nurses, these findings are not satisfactory; therefore greater efforts should be made in order to reduce nurses' burnout. The high scores of most nurses in these two dimensions can indicate the absence of appropriate adaptation of nurses to their work environment. Studies have shown that people who have more mental ability experience lower DP levels (42). Moreover, researches have shown that nurses, whose efforts and rewards are in a good fit, experience less DP levels. Low levels of DP can

show appropriate interpersonal relationships between staff. It should be noted that complications and various factors also impact DP, therefore, genetic, family and social factors should be considered as well (42).

In the PA dimension, the results were not particularly good either, as most nurses were at a low level in this dimension. Feeling of success, dominance and personal competence are created whenever a person can influence the policies of an organization, which enables he/she to present their abilities along with positive views about themselves and their patients (20). According to the results of this study, it most nurses are probably not able to prove their competences in their work environment which maybe the reason they have low levels of PA. High levels of burnout in the PA dimension indicate; negative views about themselves, their profession, tendency for absences, loss of interest in their job, and reduced self-confidence in individuals (20). Studies have shown that support systems for nurses in stressful environments may play an important role in occupational satisfaction and feelings of PA (31). It seems that by taking necessary actions in this regard, we can take important steps in increasing feelings of PA and decreasing burnout in nurses. By supporting nurses, they can express their feelings, talk about their concerns and look for professional support, if necessary.

Previous studies have also indicated that there is a close relationship between burnout and tension and in fact, this kind of exhaustion is created by continuous tensions (13). Overwork and lack of time, stressful factors in the environment which have a direct effect on an individual's mental health, direct caring for patients, organizational atmosphere, conflict and contrasts between other staff in the health-care system, writing various reports, little cooperation in decision-making, no feedback from authorities, managerial structures, physical factors in the work environment, type of hospitalized patients and the essential nursing care required for them, and even the unit type, are all important factors that impact the amount of stress nurses experience (44). In general, the results of the current study fit with the public perception that working in a hospital increases burnout levels. As demonstrated, most nurses were at high levels in EE and DP, and these scores were elevated in comparison with many other studies carried out on nurses. Studies have indicated that burnout is originally created by organizational factors and it has a procedural status more than a static one. Burnout is a negative experience which results from the relationship between the person and the environment. Some researchers consider conflict to be one of the most important variables in predicting burnout; others relate it to individual variables like depression, anxiety and vulnerability (34, 36).

Pearson's correlation coefficient indicated that there is a reversed significant relationship between productivity and the various dimensions of burnout ($P < 0.001$).

In other words, subjects with higher scores in different burnout dimensions had lower productivity scores. In one study in a southern US state, it was reported that job stress in nurses was associated with decreased work productivity (18). Also, Nayeri et al. in their research indicated a significant negative relationship between productivity and EE and DP which is similar to the results found in the present research. These researchers have also shown a direct significant relationship with nurses PA and their productivity (38), which is different from the results of the present research. In this research, by increasing an individual's productivity, their sense of PA was reduced, which needs more reflection. In all probability, there were insufficient numbers of appropriate organizational occupations for the nurses' educational degree, and as a result, they may not have received the appropriate salary and privileges which may be one of the reasons for this reversed relationship. Furthermore, existing difficulties in the methods of professional development and growth in organizations can be considered as influential factors. On the other hand, there are many highly educated staff members who have not had an organizational job related to their educational degree for a long time and this would be very effective on decreasing their motivation. Solving existing problems in this regard could be a solution. Of course, desirable productivity cannot be obtained only by changing structures such as; adding technology, creating schedules, and issuing circular letter, because people remain at the center of every type of personal-social and organizational productivity. Therefore, most of the attention and planning in organizational productivity should consider humanistic factors (3). Studies have shown that democracy in the work place, authorization (45), training and increasing skills, occupational coping with individual proficiency (39, 45), legalism in organizations, having appropriate reward systems and cooperation in decision making (39), are some of the factors creating increased productivity in organizations, which should be considered carefully by managers.

The results of the present study showed that productivity has a significant relationship with; nurses second job, experience of quitting the job or/and absence from work, and scheduling according to the nurse's request ($P < 0.05$), but it did not have a significant relationship with other individual characteristics of the subjects ($P > 0.05$). One study found no significant relationship between the productivity of nurses with sex and marital status ($P > 0.05$), but a significant relationship between productivity with experience of absence ($P < 0.05$) (6), which is similar to the results of this study. However, in the previously mentioned study, there was no indication of a significant relationship between productivity with scheduling according to the nurse's request and nurse's second job ($P > 0.05$) (6). Furthermore, it was reported in another study that a significant relationship remains between productivity and age ($P < 0.05$) (18), which is different from the results of the present study.

The appearance of burnout syndrome has a range of outcomes of which the most important ones are; decreasing mental health levels, being absent from work, changing jobs, reduction of quality of care for patients and decreasing patient satisfaction levels (14). All organizations prefer to employ happy and healthy staff, and nursing is no exception. Having satisfied, healthy staff is paramount for patient security and to ensure positive patient outcomes. In general, it seems that most nurses, participating in this study, were not in an appropriate condition, which makes further follow-ups necessary.

The majority of nurses reported high productivity, but because this variable was from the nurses' point of view, it is essential to investigate it from other perspectives such as managers, customers, and especially patients. Direct observation methods which review these variables would be the most appropriate method, and the results of such studies are essential to be used in order to improve their productivity.

Therefore, based on the high level of burnout found in this study in comparison with other studies, doing further researches is recommended. Support levels which these nurses experience may be lower in comparison with nurses working at other hospitals. Moreover, other organizational conditions in these hospitals would probably be given a less desirable status because the nurses have not fully adapted to the high stress conditions. Being in challenging environments is usually more stressful and the lower rewarding systems in these environments could be the main reason for the difference between scores in the various dimensions of nurses' burnout in these units, therefore, appropriate actions are required in order to decrease tensions and increase organizational supports. Nurses employed in these hospitals tolerate many kinds of stresses and based on the results of this research, greater awareness and studying of factors which lead to burnouts and formulating policies to remove these contextual factors, prophylaxis, treatment and training methods, along with adaptive coping and communication strategies, are essential for policy making in such environments.

The results of this study have increased our understanding of nurses' productivity and burnout, and these findings can be applicable in educational, clinical and management situations. Efforts to decrease burnout and increase productivity among nurses should lead to increased quality of patient care and improved quality of nurses' work life, potentially saving health-care organizations billions of dollars annually. If adequate steps are not taken, health-care organizations will pay the price for nurses' burnout through the decreasing quality and quantity of services they offer. As health organizations are dynamic in nature, future studies are recommended in order to investigate health care professionals' productivity and its effective factors.

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Authors' Contribution

Zahra Farsi contributed in all stages of the research: planning, collection and analysis of data, and in writing the paper. Hengame Habibi was involved in data analysis. Mohammad Hossein Lashkari supervised this study. All authors read and approved the final manuscript.

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