



## Timing of nurses activities: human resources management

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### ABSTRACT

Costs of human resources include a high percentage of hospital's costs; therefore, determination of number of real and optimal employees needed for organizations is very important. In the meantime, the optimal organization of nurses, as the biggest human resource in health care organizations, is of great importance. The present study aimed to assess the distribution of nurses' activities in shifts and the results of productivity in human resources management in Imam Khomeini hospital in Shirvan. The present cross-sectional study was conducted in 2016. All nurses, working in three shifts of morning, afternoon, and evening in emergency unit and general units of Imam Khomeini hospital, Shirvan, were enrolled into the study through census methods. The instrument, used in this study, was the checklist of timing activities and patients' satisfaction from nurses. The statistical software SPSS was used for analysis. Mean age of employees in these two units/wards was 31 years and mean duration of work experience was 5.24 years, The difference was significant between the two wards. necessity of the work, especially in emergency unit, are issues that need more assessment and need to be adjusted. Given the high volume of non-care matters of nursing staff, including writing services, including completing paper records and work with HIS (Hospital Information System), which has been emphasized in several studies, new definition of service and use of artificial intelligence with high efficacy is proposed. The status of the available equipment, availability, and efficiency of digital equipment and hoteling state of wards and hospitals also play an important factor in the distribution of time of nursing care activities. Employment of nurses to perform non-nursing duties, because of the shortage of other classes or lack of their permanent presence and based on Although there were differences in standard time of direct and indirect care in emergency unit and general wards, in this study and many other studies, no significant difference was observed in the time spent in these wards.

**Keywords:** human resources management, nurses activities, direct care, indirect care.

### INTRODUCTION

Hospitals, as the largest centers providing health and medical care to society, includes the major part of resources and credits allocated to health and medical care of the country. Thus, the costs of human resources in each hospital include more than 60% of a hospital's resources. The problems related to determination of number of real and

optimal employees needed, due to its importance in the quality of services provided to clients and its costs for hospital, is an issue with no clear standard modified for it until now [1]. Promotion of general health of people and providing care with favorable quality is one of the important objectives of organizations of health and medical care services [2]. Nurses play a great role, as the biggest human resources in health and medical care organizations [3], as the first and most important factor in improving the quality of care is the assessment of nurses' activities in providing nursing care to patients, proportional with standards and evidence [2]. The optimal time of direct nursing care in general wards, based on the theory of Abdellah & Levin, is one hour and the time of indirect nursing care in general wards are 0.7-1 hour per patient during 24 hours. The time of providing these type of care in cardiac care unit is 8 hours during 24 hours and in emergency unit 12 hours [4]. It seems that the waste of nursing resources in Iran is greater than other countries and nurses believe that they do not have appropriate efficiency in this situation and their energy is spent on administrative and secretary affairs [3]. The problem of hospital employees' timing has gained attention of many researchers since 1980s [5]. Shortage of human and physical resources decrease the required time for high-quality care, as nurses have used "Selective Focusing" to overcome this problem, which means that they prioritize the care, based on the available time and patients' conditions, and allocated their majority of time to patients' safety [6]. The nursing care contains direct patient care, including directed activity in patient care, and indirect patient care that includes activities associated with recording or reviewing patients' information, activities related with the medical unit and personal activities [7]. An important issue considered always in providing care is access to high-quality care and attracting patients' satisfaction, as recipients of nursing care, which is paid attention since 1990s as an index of quality services in assessment of nurses' function in health & medical centers of the United States. In Iran, as well, since 2011, the ministry of health and treatment has necessitated hospitals to periodically assess patients' satisfaction and perform necessary interventions to increase client satisfaction [8-10]. One of the indexes of evaluation of nurses' function is the time spent for providing the nursing care [3]. Nurses' care is one of the most important aspects of clinical practice and act as a key component that distinguishes the nurse's role from doctors; studies have shown that nurses who spend more time for direct patient care play an important role in satisfaction of patients [9]. However, the study by Roohi et al.[3] showed that a significant portion of staff time is dedicated to writing actions and less than half of their time is dedicated to taking direct care; also, Westbrook et al.[11] reported that 37% of the time of nursing activities is spent for taking direct care in a teaching hospital in Australia. This time was calculated during two time periods in 2005-2006, and 2008 and had no change in the third year, compared to before. Patients expect that all affairs related to their treatment and care be performed on time, without delay, with necessary skills, with high accuracy and continuously [8]. Although there are no accurate statistics available in our country, researches on the quality of nursing care, patients' and nurses' satisfaction witness low quality of nursing services and its associated complications. Reviewing the nurses' function in the past ten years in Iran state weak nurses' function [2]. Perhaps this poor performance is caused by too much of the nurses' workload, as Rafii et al.[12] showed that two categories of structural factors, including the inner- and outer-organizational situation affect the quality of care and heavy workload has been mentioned as an internal factor [1, 3]. Therefore, for more efficiency of health centers from nurses' human resources, it is essential that these organizations evaluate nurses' function more accurately to achieve their goals, and given that the speed of service delivery is particularly important in order to reduce the mortality and morbidity and patient satisfaction [3], we aimed to investigate the distribution of the workload of nurses to be able to adjust resources and find a way to make better use of nurses' time to improve patients' satisfaction that is the ultimate goal of the organization.

## MATERIALS AND METHODS

The present cross-sectional study was conducted in 2016. All nurses, working in three shifts of morning, afternoon, and evening in emergency unit and general units of Imam Khomeini hospital, Shirvan, were enrolled into the study through census methods. The instrument, used in this study, was the checklist of timing activities and patients' satisfaction from nurses. The timing checklist has been used by other researchers and its content validity was confirmed by experts [13]. This checklist includes two sections of demographic information and timing activities of nurses, through self-report, like other similar studies [13], which divided the activities of nurses into areas including direct patient care, writing services, non-nursing duties, indirect patient-centered activities, patient assessment and personal development activities that each nurse completed at the end of the shift. Also, the activities in each field were designed, with minor modifications according to the same study [13], and were completed by nurses. After coordinating with the hospital authorities, obtaining the necessary consent forms, introducing the researcher to the research environment, and providing training to nurses on the objectives of the study, the checklist was completed by them through self-report. The researcher assessed the recorded times for 72 hours experimentally and announced the recorded problems to the registration department officials. Then again, the checklists were completed by the

nurses. In order to complete the checklist more accurately, in each shift, one of the nurses (pursued by the researcher at the end of each shift) had the responsibility of supervising the implementation of work, just to prevent lack of recording time of activities in the checklist. The nurses' satisfaction from the unit was also assessed. Ultimately, analysis of qualitative and quantitative data (continuous and discrete) was performed using descriptive statistics. After collecting, coding and data entry into computer, and controlling it by a second person, analysis was performed using statistical software SPSS version 18.

**RESULTS**

Mean age of employees in these two units/wards was 31 years and mean duration of work experience was 5.24 years; 7.11 years in unit A (intensive care unit) and 3.37 years in general ward with statistically significant difference ( $p < 0.05$ ). All participants had bachelors' degree. Satisfaction of personnel from the units was 91.66% in emergency unit and the rest of the staff were somewhat dissatisfied, while 92.30% of general ward personnel were satisfied and the rest of the staff were somewhat dissatisfied. Also, in response to the question "In which ward/unit you wish to work?", 83.33% of the personnel of emergency unit and 76.92% of the general ward tended to stay in their own ward/unit (Table 1).

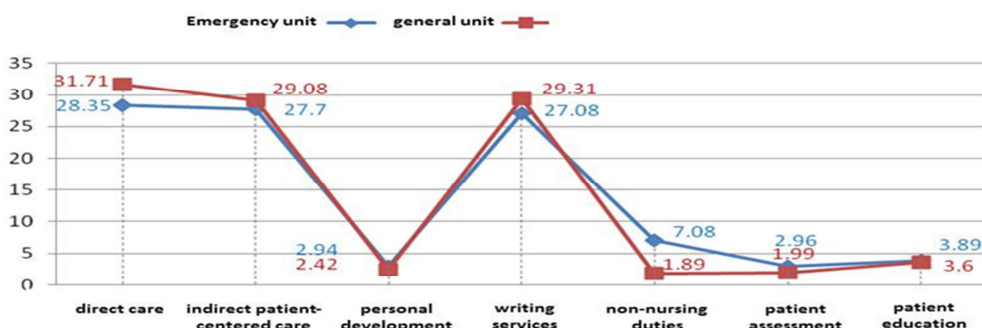
**Table 1: Comparison of emergency unit and general ward of Imam Khomeini hospital Shirvan in terms of satisfaction and willingness to change unit/ward**

unit	Mean age	mean duration of work experience	Satisfaction of personnel(In Percent%)			Sections transfer request (In Percent%)		
			satisfied	somewhat	dissatisfied	Current unit	Current unit Or The other	The other unit
A(Emergency unit)	33	7.11	91.66	0	8.33	83.33	16.66	0
B(general unit)	29	3.37	92.30	0	7.69	76.92	23.07	0

The time spent per nurse per shift and in each area of direct and indirect nursing care were recorded for one week and finally resulted in Table 2, based on the type of activity and shifts. In general, mean time for both units were as follows: direct care: 30.03%, indirect patient-centered care: 28.39%, personal development: 2.68%, writing services: 28.19%, non-nursing duties: 4.48%, patient assessment: 2.47%, and patient education: 3.75%. Comparison of the time spent in emergency unit and general wards can be seen in Figure 1. As evident, the two figures are almost identical and the maximum difference is between non-nursing activities and then in the direct patient care, with more time spent in the emergency unit and general ward, respectively,

**Table 2: Evaluating the workload of nurses in emergency unit (A) and general ward (B) of Imam Khomeini hospital Shirvan**

A:Emergency unit B:general unit		mean time activities(In Percent%)							
		In morning(%)		In afternoon(%)		In evening(%)		Total Mean(%)	
Type of Activity		A	B	A	B	A	B	A	B
1) direct care		30.25	32.33	27.7	30.66	27.15	32.17	28.35	31.71
2) indirect patient-centered care		30.53	32.11	26.07	28.67	26.53	26.49	27.70	29.08
3) personal development		2.83	2.56	3.24	1.49	2.77	3.24	2.94	2.42
4) writing services		27.59	21.18	27.43	25.54	26.23	26.32	27.08	29.31
5) non-nursing duties		5.39	1.58	5.28	2.59	10.57	1.52	7.08	1.89
6) patient assessment		2.81	1.69	3.55	2.28	2.54	2.01	2.96	1.99
7) patient education		3.64	2.70	4.40	3.57	3.65	3.55	3.89	3.60



**Figure 1: Comparison of workload of nurses in emergency unit (A) and general ward (B) of Imam Khomeini hospital shirvan**

## DISCUSSION

This study aimed to assess the time spent by nurses working in emergency unit and general wards, in each of the activities. According to the findings of the study, nurses in emergency unit and general wards spent little time on direct patient care and a total of 30.03% of the time of the studied staff in these wards were dedicated to direct patients' care. In the study by Roohi *et al.*[3], 46.46% of the nurses' time was spent on direct patient care [1]. The results found in the present study is very close to the results by Westbrook *et al.*[11], stating that 37% of the nurses' activities, in a teaching hospital in Australia, is spent on direct nursing care. This time was calculated during the two time periods in the years 2005-2006 and 2008 and in the third year, there was no change, compared to before [10]. In the study by Brad Shaw, Norrie [15] and Rouhi *et al.*[13], the time spent on direct care was less than other care [3]. The results of the study by Gholizadeh *et al.*[16] found that the time of direct patients care by self-report and observation method were 40.52% and 32.74%, respectively. In the present study, 28.39% of the time spent focused on indirect patient-centered nursing care; this time was 24.09% in the study by Gholizadeh *et al.*[16] and was equal to 53.54% in the study by Roohi *et al.*[3]. 29.31% of the nursing care time has been spent on writing services in the present study. This figure in the study by Roohi *et al.*[3] were 20.3% and 15.18%, respectively [13]. Also, in the present study, generally, only 2.68% of time was spent on personal development, but this figure was very high in other studies; as in studies by Gholizadeh *et al.*[16] and Rouhi *et al.*[13], 42.30% and 22.5% were spent on personal activities. Also, some of the percentages of this area belongs to dress changing in the ward, which was not included in the present study and was recorded from the moment of the presence of the nurse in the ward, but, in general, the observed difference in the recorded time can be due to data collection tool (self-report vs. observation) or factors such as the design and size of the ward, type of the studied ward, the dependence amount of the patient, and organization of nursing personnel that do not match among studies. Also, one of the most effective factors include nurse-to-patient ratio and bed turnover, which can be an important reason for the difference in the time spent in this respect. The use of different assessment tools that makes registration of some activities in a different category than other studies is another reason for this differences. Patient education in the present study included 3.75% of activities and this figure was 0.49% in the study by Roohi *et al.*[3]. The patients' assessment in our study included 2.47% of time, while this figure was reported 7.43% in the study by Rouhi *et al.*[13]. In the study by Heydari and Tabari.[4] mean time of direct nursing care was 21.5±11.1 minutes and mean time of indirect nursing care was 22.1±10 minutes per patient. And mean time of non-care activities was 47.3 min (9.32% of shift time), regardless of the number of patients. Also in studies by Misener and Frelin [17] direct nursing care was 24.5% and 22% and indirect nursing care was 60.5% and 36.8%, respectively [18]. Misener and Frelin also showed that personal activities (non-care service) accounted for 15% of the time [18]. In the study by Raeissi *et al.*[19], nurses in both shifts of 8 and 12 hour spent more time on professional activities, so that direct care was observed in 41.21% in 8-hour shift and indirect care in 23.78% and this proportion is very close to the time in 12-hour shifts' care, 22.53% for personal affairs and 12.5% for ward matters. Also in the present study, non-nursing duties were separated, which included 4.48% of the nurses' time and this ratio in emergency unit (7.08%) was greater than general ward (1.89%).

## CONCLUSION

Although there were differences in standard time of direct and indirect care in emergency unit and general wards, in this study and many other studies, no significant difference was observed in the time spent in these wards. The time spent for nursing care provided to patients was the determination of quality of nursing care. With regard to the importance of direct patient care, the index of timing of nursing patients care can be included and considered in ministry's function indexes. By calculation of the time related to direct and indirect activity of nursing, human resources design can be formed logically and proportional with the truth. As the need for human resources is assessed by change in hours assigned to direct or indirect care and following the change in combination of resources, the cost and quality of work will be controlled desirably and effectively. It is suggested that managers, with such studies and by changing the organization method, division of work, and construction of wards, improve the status and quality of patient care, according to the results. Given the high volume of non-care matters of nursing staff, including writing services, including completing paper records and work with HIS, which has been emphasized in several studies, new definition of service and use of artificial intelligence with high efficacy is proposed. Moreover, changing management strategies, such as using resources at different levels of care and using new management practices can provide improvement in the quality of services and optimal use of resources and nursing time to provide safe care. Further investigations and finding gaps, training proper techniques and completing medical records, reform of the available structure in the records in a means that needs less writing will be efficient. The status of the available equipment, availability, and efficiency of digital equipment and hoteling state of wards and

hospitals also play an important factor in the distribution of time of nursing care activities. Employment of nurses to perform non-nursing duties, because of the shortage of other classes or lack of their permanent presence and based on necessity of the work, especially in emergency unit, are issues that need more assessment and need to be adjusted.

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