Crit Care Nurs J. 2018 February; 11(1):e64815. doi: 10.5812/ccn.64815.

Published online 2018 February 26. **Research Article**

Barriers to Nursing Performance from the Perspective of Nurses Working in Intensive Care Units

Zahra Rajaeian,[1] and Negin Masoudi Alavi[1,*]

[1]Trauma Nursing Research Center, Kashan University of Medical Sciences, Kashan, Iran

[*]*Corresponding author*: Dr Negin Masoudi Alavi, Ghotb Ravandi Highway, Kashan University of Medical Sciences, Faculty of Nursing and Midwifery, Trauma Nursing Research Center, Kashan, Iran. Tel: +98-3155540021, Fax: +98-3155546633, E-mail: masudialavi_n@kaums.ac.ir

Received 2017 December 05; **Revised** 2018 February 21; **Accepted** 2018 February 21.

Abstract

Background: There are many performance obstacles in intensive care units (ICU) that can waste a nurse's time and energy. Detection and elimination of these obstacles can improve efficacy in ICUs.
Objectives: This study was carried out to identify the performance obstacles experienced by nurses in ICUs of selected hospitals in Kashan,Iran, 2015.
Methods: In this descriptive analytical cross-sectional study, all 80 nurses working in ICUs reported their performance obstacles in 240 working shifts. The research instrument had 2 parts: 1- information of nurses and their working shift; 2- nursing performance obstacles questionnaire of Gurses. The questionnaire evaluates performance obstacles in 4 dimensions of environment, task, technology, and organization. The data analyzed with the descriptive and analytical statistics including Mann-Whitney U and Krukall-Wallis tests, and multiple regression analysis using SPSS 16.
Results: The most common obstacles were: receiving too many phone calls from family members (75%), delay in getting medications from pharmacy (54.6%), insufficient space to sit down and do paperwork (52.9%), and disorganized unit (51.6%). In the field of technology, having to use equipment in poor condition (35%) was the most frequent obstacle. Delay in seeing new medical orders (48.3%) and inadequate information from physicians (30.4%) were other common obstacles. The nurses with less than 3 years of experience working in ICUs, those working morning shifts, and nurses who had admitted more patients reported significantly more obstacles.
Conclusions: Nursing performance obstacles were different. Many obstacles such as receiving too many phone calls and having to use equipment in poor condition can be managed by simple interventions such as using technology to give information to the family members. Management policies and enhancing team works are needed to reduce obstacles such as inadequate information from physicians and disorganized unit. We need further studies, to evaluate how the elimination of these obstacles can improve the nursing care in ICUs.

Keywords: Critical Care Nursing, Intensive Care Units, Work Performance, Barrier and Perception

1. Background

There are many obstacles in hospitals that waste the time and energy of the nurses. Hectic and disorganized workplace, poor-conditioned equipment, spending much time dealing with family needs, and ineffective morning rounds are some of these obstacles (1). Ineffective nurse physician communication (2), unclear medication orders (3), and insufficient nurse-to-patient ratio (4) can also act as barriers in nursing care.

In intensive care units (ICU), the performance obstacles are wider. These units are an essential part of hospitals that provide care for the patients with critical and life threatening conditions (5). According to a survey in 2006, there were 3720 ICU beds in Iran with the occupancy rate of more than 90% (6). In ICUs, nurses' performance has direct effect on the health status of patients (7). Enhancing the quality of care and maintaining patient safety are basic challenges in intensive care units (2, 8). It has been calculated that everyday, about 178 different procedures and tasks are done for every ICU patient that reflects the high workload in these units (2). The performance obstacles create a problem in providing the standard care and exhaust the nursing resources without any further benefit for the patients (7).

Nurses' shortage makes the situation worse (9, 10). In terms of high workload, low number of employees, and

the large number of patients, the nurse may focus only on the main tasks and ignore the duties that are not blamed for omitting them. As a result, many patients' needs will be neglected (11). One of the methods of raising the productivity of working hours is identifying and eliminating the performance obstacles.

Despite the importance of this issue, few studies have been done in this area. Bahadori noted the lack of clear authority and responsibility, miscellaneous tasks, and work force consisting of nursing students, junior staff, and untrained nurses were important performance obstacles in critical care units (12). The studies in other countries also show the performance obstacles are common. A study in the United States showed that unnecessary repeated visits of family members, delay in getting the medicine from the pharmacy, the equipments in poor condition, and crowded unit have been the obstacles for nursing care in intensive care units (13). In a study in Egypt, the performance obstacles identified in 4 categories: the physical environment (lack of space), equipment (poor condition), technology (new equipment and unfamiliarity with its function), and task (non-nursing tasks) (14). In Greece the most reported nursing performance obstacles were the patient's family issues, delays in getting medication from the pharmacy, unavailability of equipment, insufficient workspace to do paperwork, and delay in seeing new medical orders (15). In the United States the most frequent experienced performance obstacles were noisy work environment (46%) and distractions from families (42%) (16). It seems there are wide ranges of obstacles in different settings worldwide that needs further studies. This study aimed to identify the nursing performance obstacles in intensive care units of selected hospitals, Kashan/Iran, 2015.

2. Methods

2.1. Study Design and Setting

This descriptive analytical cross-sectional study was conducted in selected hospitals in Kashan in October and November of 2015. The hospital is general and has 600 beds, 5 ICUs with 40 beds. This hospital had 530 nursing personnel, 80 of them were working in intensive care units.

2.2. Study Population

All the nurses with a Bachelor's degree and above who had at least 1 year working experience in intensive care units (80 nurses) were recruited to the study. We wanted to evaluate the obstacles in morning, evening, and night shifts; therefore, each nurse evaluated the performance obstacles in 3 working shifts. At the end, the information of 240 shifts (morning, evening and night) were collected.

2.3. Data Collection Procedure

The study objectives were explained to the nurses. Every nurse received 3 questionnaires and was asked to complete them in his/her working shifts sequentially. The first author went to the ICUs and reminded nurses to complete the questionnaire based on their experiences during that particular shift. Nurses could complete the questionnaire any time during the last 2 hours of their shift or right after the end of the shift.

2.4. Measurement

The instrument used for recording performance obstacles was a questionnaire derived from the performance obstacles questionnaire of Gurses (16). The questionnaire was translated into Farsi, the Iranian language. The translated questionnaire was validated by 10 nursing experts. The content validity ratio (CVR) and the content validity index (CVI), based on the waltz and Basel method, were calculated. The CVI of the items were between 0. 75 to 1 and the validity of the whole questionnaire was 0.92. The CVR was 0.64, both indexes were acceptable. The translated questionnaire was completed by 20 nurses in a pilot study and the coefficient alpha cronbach was 0.865. The questionnaire had 22 items with a nominal scale (yes or no). There are 14 items of a semantic differential response format (Likert) with a 5-point rating scale.

This questionnaire classifies obstacles into 4 categories:

- The obstacles related to the physical environment such as noise and the physical space available.

- The obstacles related to the tasks such as disruption of concentration and excessive educational as well as supportive needs of the family.

- The obstacles related to the technology and tools such as patient's room not well-stocked and delays in getting medication from the pharmacy.

- Obstacles related to organization such as changing shift report and receiving inadequate or too detailed information from previous shift's nurse.

The questionnaire had 22 dichotomous (that yes answer shows the existence of the obstacle) and 14 likert items. In likert questions, the reporting of the 4 and 5 categories, were considered as the existence of the obstacle. For scoring the questionnaire the sum of the obstacle were calculated. Therefore, the total number of the obstacles could be between 0 to 36.

The background information of the nurses including age, gender, work experience, work experience in the intensive care units and working hours were recorded. Information related to the type of shifts and the number of patients admitted was also recorded.

2.5. Ethical Considerations

This research has been approved by the ethical committee of Kashan University of Medical Sciences in spring of 2015 with the code of IR.KAUMS.REC.1394.72. Participation in the study was completely optional. Consent form with full descriptions about the content of the study, the advantages and disadvantages, and a reference to complaints to ensure full understanding of the consequences of participation in the study for the participants was attached.

2.6. Statistical Analysis

All data was analyzed using SPSS version 16. Descriptive statistics tests were used and the frequencies were reported. The total number of obstacles was used as a numeric variable. The Kolmogorov Smirnvo showed that the total number of obstacles was not normal. The Mann-Whitney and Kruskal-Wallis tests were used for testing the association of number of obstacles with other variables such as the sex of the nurses and their age, the working shift, and the number of admissions. The multiple regression analysis was used for testing the variables that could explain the sum of the obstacles. P value less than 0.05 was considered significant.

3. Results

In this study, the information of 3 working shifts of 11 (13.8%) male and 69 (86.2%) female nurses were recorded. The mean working years in hospital and intensive care units were 8.47 ± 4.36 and 5.1 ± 2.94, respectively. The average working hours in the past week was 44 ± 15.69 hours and in the past 24 hours it was 12.1 ± 4.1 hours. All nurses had a Bachelor degree in nursing (Table 1).

The most common obstacles were related to the disruptions by family members. Receiving too many phone calls from family members (75%) and distractions from family members (72.9%) were the most common obstacles. Delay in getting medications from the pharmacy was reported in 54.6% of shifts. In the field of environment, insufficient space to sit down and do paperwork (52.9%), and disorganized unit (51.6%) were the most frequent recorded obstacles. In the field of technology, having to use equipment in poor condition (35%) was the most important obstacle. Delay in seeing new medical orders (48.3%) and inadequate information from physicians (30.4%) were other common obstacles. About 87% of nurses were satisfied with the help of their colleagues (Tables 2 and 3).

In average, the nurses reported 9.77 ± 5.3 obstacles (Range 0 - 25). The nurses with less than 3 years of work experience reported significantly higher obstacles. The nurses working in morning shifts and those who admitted more patients had significantly higher obstacles (Table 1). Multiple regression analysis showed that the working shift and the number of admissions could explain 9.8% of obstacles ($R^2 = 0.098$, Adjusted R square = 0.63, F = 2.8, P = 0.004).

4. Discussion

This study showed various barriers in nursing performance in ICUs. The distractions by family members and poor environmental conditions have been reported by the nurses as common problems. About half of the nurses noted that there was not enough place to do their paper work. The crowded and hectic work environment was another common problem.

The first 4 common reported obstacles were related to family disruptions, such as their too many phone calls and the huge amount of time spending for explaining things to the family members. Keshk reported that 33.4% of the nurses saw the frequent phone calls of the family members as an important obstacle (14). Mohamadi also found that family members can increase the workload of the nurses considerably (1). Most of the patients in the ICU are in critical conditions and it is understandable that the families are nervous and want to know more about the patient's condition. This is a rational expectation that needs to be addressed in hospital services. Using Internet capabilities and social networks as an information device might help to address these needs without disruption nursing performance. It is also recommended that a family member choose a connection person between nursing personnel and the family members, so the nurses are not forced to answer the same questions repeatedly.

A study in France showed that unrestricted visiting policies, having waiting rooms for families, and formal procedure for informing families, were not implemented in the majority of the ICUs (17). That showed that there is a need for visiting policies and management of family members in the ICUs. Families have a key role in patients care and effective communication between nurses and the family can have positive role in nursing care, therefore, the

Table 1. Demographic and Background Information of the Intensive Care Unit Nurses and the Total Number of Reported Obstacles

Variables	No. (%)	Total Number of Obstacles, Mean ± SD	P Value
Gender			0.095
Female	11 (9.5)	9.59 ± 5.6	
Male	69 (90.5)	10.9 ± 3.6	
Age, y			0.382
Less than 34	37 (46.3)	10.1 ± 5.6	
35 - 44	25 (31.2)	9.6 ± 5.5	
45+	18 (22.5)	9.1 ± 4.7	
Work experience, y			0.587
Less than 4	14 (17.5)	10.13 ± 3.9	
5 - 10	42 (52.5)	9.9 ± 6	
11+	24 (30)	9.3 ± 4.9	
Work experience in ICU, y			0.001*
Less than 3	23 (28.8)	11 ± 5.1	
3 - 6	33 (41.2)	8.3 ± 5.3	
7+	24 (30)	10.6 ± 5.2	
Hours worked per week			0.225
Less than 44	129 (53.8)	9.4 ± 5.4	
44+	111 (46.2)	10.2 ± 5.2	
Working shift			0.031*
Morning	80 (33.3)	10.7 ± 5.8	
Evening	80 (33.3)	8.5 ± 5.1	
Night	80 (33.3)	9.1 ± 4.6	
No. of patients assigned to a nurse over the shift			0.117
1	53 (22.1)	8.7 ± 6.2	
2	139 (57.9)	10.2 ± 5.1	
3	36 (15)	10.1 ± 5	
4	12 (5)	8.2 ± 5	
No. of admissions by each nurse over the shift			0.007*
0	180 (75)	9.1 ± 5.4	
1	54 (22.5)	11.6 ± 4.8	
2	6 (2.5)	12.1 ± 6.2	

nurses can change their involvement from a threat to a benefit. This needs planning and technology.

Delay in getting medications from the pharmacy was another common problem. A study in Iran showed that delay in getting medications and disorganized central stock were the performance obstacles in ICUs (1). A study showed that the median number of pharmacy interventions per patient was 4 in the ICU and 32% of the patients had new medication(s) started every day (18). Poly-pharmacy is a challenging issue in the ICU and poor communication between pharmacy and ICU can make it more complex.

Nurses reported some barriers related to the environment of the ICU. The problems such as, insufficient space to sit down and do paperwork as well as disorganized unit were reported frequently. The well organized environment is essential for proper performance. Some researchers have reported the poor environmental condition in the ICUs. Bahadori, in Iran, in 2014, noted that there were inappropriate proportions between the number of patients and the size of the ICUs in Tehran hospitals (12). In a study, the most critical performance obstacles affecting the workload in the ICU in Iran were: difficulty in finding a place to sit down, hectic, and disorganized workplace (1). This problem can be seen in other countries. Gurses in the United States (19) also reported that there were problems in the size and the environmental conditions of the ICUs that can act as the obstacles in the nursing performance. The difficult working conditions, also can negatively affect the fam-

Table 2. Performance Obstacles with Nominal Scale

Performance Obstacles	No. (%)	Category
Receiving many phone calls from family members	180 (75)	Environment
Distractions from family members	175 (72.9)	Environment
Spending time dealing with family needs	161 (67.1)	Task
Spending considerable amount of time teaching family members	140 (58.3)	Task
Delay in getting medications from pharmacy	131 (54.6)	Organization
Insufficient space to sit down and do paperwork	127 (52.9)	Environment
Delay in seeing new medical orders	116 (48.3)	Organization
Change of shift report taking too long	99 (41.2)	Organization
Patients' rooms not close to each other	96 (40)	Environment
Accompanying a patient during intra-hospital transport	88 (36.7)	Task
Having to use equipment in poor condition	84 (35)	Technology or tools
Inadequate information from physicians	73 (30.4)	Organization
Equipment not available because someone else was using it	66 (27.5)	Technology or tools
Unnecessarily detailed information given by previous shift's nurse during shift change report	49 (20.4)	Organization
Isolation rooms not well-stocked	44 (18.3)	Technology or tools
Spending time searching for patients' charts	43 (17.9)	Organization
Inadequate information given by previous shift's nurse during shift change report	40 (16.7)	Organization
Patient rooms not well-stocked	38 (15.8)	Technology or tools
Spending time searching for equipment-equipment not located in the right place	38 (15.8)	Technology or tools
Responsible for orienting a nurse	35 (14.6)	Task
Spending time seeking for supplies in the supply area	31 (12.9)	Technology or tools
Supply area not well-stocked	31 (12.9)	Technology or tools

Table 3. Performance Obstacles Measured with Semantic Differential Response Format[a]

Item	Best (1)	Appropriate (2)	Medium (3)	Unappropriate (4)	Worst (5)	Category
Help from nursing assistants (timely)	54 (22.5)	125 (52.1)	46 (19.2)	9 (3.8)	6 (2.5)	Organization
Help from nursing assistants (adequate)	52 (21.7)	123 (51.2)	47 (19.6)	12 (5)	6 (2.5)	Organization
Help from nursing assistants (useful)	60 (25)	114 (47.5)	46 (19.2)	19 (7.9)	1 (0.4)	Organization
Help from other nurses (timely)	102 (42.5)	108 (45)	24 (10)	4 (1.7)	2 (0.8)	Organization
Help from other nurses (adequate)	109 (45.4)	100 (41.7)	26 (10.8)	3 (1.2)	2 (0.8)	Organization
Help from other nurses (useful)	115 (47.9)	102 (42.5)	16 (6.7)	5 (2.1)	2 (0.8)	Organization
Help from unit clerks (timely)	31 (12.9)	47 (19.6)	27 (11.2)	10 (4.2)	3 (1.2)	Organization
Help from unit clerks (adequate)	30 (12.5)	46 (19.2)	24 (10)	14 (5.8)	4 (1.7)	Organization
Help from unit clerks (useful)	38 (15.8)	49 (20.4)	19 (7.9)	10 (4.2)	2 (0.8)	Organization
Work environment (being quite)	29 (12.1)	97 (40.4)	73 (30.4)	31 (12.9)	10 (4.2)	Environment
Work environment (being roomy)	24 (10)	96 (40)	80 (33.3)	23 (9.6)	17 (7.1)	Environment
Work environment (being calm)	26 (10.8)	87 (36.2)	78 (32.5)	35 (14.6)	14 (5.8)	Environment
Work environment (organized)	8 (3.3)	27 (11.2)	81 (33.8)	85 (35.4)	39 (16.2)	Environment
Patient rooms assigned (organized)	5 (2.1)	12 (5)	113 (47.1)	86 (35.8)	24 (10)	Environment

[a]Values are expressed as No. (%).

ily centered care (20). This category has wide dimensions that have not been investigated here. For example the insufficient light or the ventilation of these units are important components that have not been evaluated here.

In the field of technology, having to use equipment in poor condition was the most frequent barrier. Other studies in Iran and other countries support this finding. Mashoof in Iran found that 43% of nurses mentioned the poor equipments as an obstacle (21). Keshk and Gurses also reported that poor technology and insufficient number of the equipment are common obstacles (14, 16). Every ICU has numerous equipment and technologies; more than any other ward in the hospital. These tools have a crucial role on the quality of care in the ICUs. Ventilators, in-

fusion pumps, monitors, and dialysis make health care in an intensive care setting more complex. Technology is not only the equipment itself, but also the knowledge of how to use it (22). These equipment need to be evaluated continuously and replaced when it is old and out of order. In educational hospitals, the budget is limited for purchasing capital items that may make the caring difficult.

Delay in seeing new medical orders and inadequate information from physicians were other common obstacles. Providing care is a teamwork that needs communication and coordination. Nurses should work based on detailed and precise information as well as clear orders. Many studies showed that poor communication between nurse and physician were common and could act as an obstacle (14, 16, 21). A study showed that there were many negative situations in multidisciplinary teamwork in coronary care units that could hinder collaborative/communicative inter-professional relationship (23). The poor communication between nurse and physician increase the medication errors (21). Farzi also reported that lack of professional communication and collaboration can cause medication error (24).

Multiple regression analysis showed that the working shift and the number of admissions could explain 9.8% of obstacles. A study showed significant differences of noise level between the work shift in the ICU, with higher values of noise intensity in the early hours of the day. It seems that morning shifts are noisier and more crowded, which may increase the barriers (25). Krajilic, 2017 also reported higher scores of workload and patient admission on day shifts compare to night shifts in the ICU, that can explain the results of multiple regression (26).

The study showed that in spite of different settings, the nurses are confronted with same the problems and obstacles. Some barriers can be eliminated easily while some need more structural changes. Recording the obstacles in 3 sequential shifts was one of the strengths of this study. This study also had some limitations. The nurses might not have sufficient time to complete the questionnaire accurately in busy shifts. Besides, the type of data collection method (self-reporting) may affect the accuracy of the data. We suggest that this study be repeated using observational tools and checklists. Nurse managers should consider the programs to eliminate the performance obstacles as a priority. The effects of reducing the barriers on the workload of the nurses and their efficiency need further studies.

Acknowledgments

The authors express their gratitude of deputy of research in Kashan University of Medical Sciences for approving and funding this study with the grant No.94072. We also thank the nursing personnel of the ICUs working in Shahid Beheshti Hospital, Kashan, Iran who shared their experiences with us. This research has been approved by the ethical committee of Kashan University of Medical Sciences with the code of IR.KAUMS.REC.1394.72.

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