

# Performance obstacles usually experienced by Critical Care nurses

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**ABSTRACT**

**Introduction:** Nursing care and patient safety may be significantly associated with the work environment of Critical Care nurses. The key factors that affect nurses' output have not been clearly identified. Performance obstacles prevent the capability of nurses to perform their task effectively related to their working environment.

**Objective:** To identify the performance obstacles commonly experienced by Critical Care nurses in their work environment in tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa, Pakistan.

**Materials & Methods:** A cross-sectional study was conducted in Peshawar from January to May 2023 on 129 Critical Care nurses of two tertiary care hospitals of Peshawar. Data were collected through convenience sampling through pre-structured and adopted validated questionnaire. The key performance obstacles were reported by Critical Care nurses. Univariate analyses was done using SPSS.

**Results:** The most common obstacles reported were spent much time for teaching family members (76%), delay in receiving medications from pharmacy (64.3%), distraction from family members (51.9%), and delay in receiving medical orders (51.9%).

**Conclusion:** Critical Care nurses experience various obstacles in their daily work environment. Further studies on performance obstacles are needed to identify nurses' work burden, quality of care, patients' safety, and redesigning of the work environment to overcome these obstacles.

**Keywords:** Nurses, Registered; Nurses, Specialist; Critical Care; Workplace; Working Conditions.

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**INTRODUCTION**

The technology of Critical Care Unit (CCU) is constantly evolving in advanced settings; professional nurses get their experience in Critical Care units and work for long duty hours to find their shifts to be demanding and exacting.<sup>1</sup> The definition of performance obstacles is the work-related factors in a given environment that exceed expected workload and have a detrimental impact on the employee's overall quality of work life.<sup>2</sup>

Nurses working in CCU play a crucial role in promoting patient safety and recovery. Working in a challenging and intense environment, Critical Care nurses (CCNs) prioritize prompt and continuous communication with patients and their families to enhance the recovery process. Patients in Critical Care units are more prone to infection, so the need for proper infection prevention and control is increasing to ensure quality of care.<sup>3</sup> CCNs have responsibilities related to both nursing and non-nursing activities. Nurses are doing multiple nursing tasks during their shifts. These tasks include: assessment of the patients, making nursing care plan, provision of comprehensive nursing care, patient assessment, developing care plans, and providing comprehensive nursing care. On the other hand, non-nursing activities do not require specific education and training, and are not associated with the direct care of patients. These activities can be accounting tasks, cleanliness responsibilities, nutritional jobs, coordination of accessory tasks, and shifting of patients.<sup>4</sup> The CCU work environment can make hurdles for CCNs in providing care, therefore it could compromise the quality and safety of patients. Multiple performance obstacles may cause interruptions such as exhaustion, overwork, insufficient information regarding patient, unclear physician prescriptions, and problems with equipment, which can increase the risk of medication errors.<sup>5</sup> These issues faced by CCNs could interrupt the quality of working life, job satisfaction, increase burnout and cause overburden.<sup>6,7</sup> A study revealed that nurses faced numerous challenges, including more patients-to-staff ratios, inadequate staffing levels, insufficient time to complete all tasks, overworkloads, assisting with non-nursing tasks like cleaning, and providing care beyond their official duties.<sup>8</sup>

Inadequate CCU work system design can cause various problems such as distraction from work, overburden, unreadable writing, lack of good communication, and issues in the medical devices associated with the poor environment of CCUs, and may lead to increased chance of mistakes among nurses.<sup>9</sup> The primary causes of increasing job dissatisfaction and high turnover rates are attributed to poor work settings, including shortage of nurses.<sup>10</sup> Nurses in developed countries like the United States encounter performance obstacles, including issues related to families, delays in receiving medications from the pharmacy, unavailability of medical devices due to others using it, inadequately equipped patient areas, insufficient space for resting and administrative tasks, missing patient files, stock, and time-consuming adherence to new doctor's orders.<sup>11</sup> There are 4 main barriers identified to quality of nursing care in professional nursing practices: *a.* lack of sufficient nursing staff available, *b.* shortage of time, *c.* contradiction in the value among other health care workers, and *d.* problem of autonomy.<sup>12</sup> Obstacles that affect the performance of nurses may stem from different aspects of their work environment. For instance, difficulties with tasks that involve managing various professional matters or problems, and barriers related to tools, such as the lack of timely access to required equipment, are some of the types of performance obstacles that hinder nurses from completing their duties.<sup>13</sup> A study has shown that empowering the areas where nurses work in clinical setting can increase both job satisfaction and quality of services.<sup>14</sup> Some studies have identified the obstacles of moderate quality as relatives and friends involved in constantly calling the nurses following the deaths of their patients in intensive care units rather than their own family members.<sup>15</sup> In order to work effectively, nurses need a work environment that supports their professional nursing practices. Reasonably, the work environment has a crucial impact on delivering quality of care and ensuring patients and staff safety. In order to increase the outcomes during duty hours it is important to work on reducing these obstacles.<sup>13</sup> The presence or absence of a good clinical setting is a significant factor that strongly influences various aspects of nurses' work, including their clinical activities, energy levels, job satisfaction, physical and psychosocial health, and the provision of a safe environment for both patients and healthcare workers. Consequently, it also impacts the quality of services provided by the institution,<sup>16</sup> less concentration has been given to the factors affecting clinical setting of nurses, which directly influence the nursing care. All these measures can be clarified by measuring the quality of nurses work settings.<sup>17</sup> Healthcare professionals are facing different obstacles in healthcare settings originating from healthcare microsystem. But there are few studies conducted on the topic in clinical areas.<sup>18</sup> The current study was conducted to determine the performance obstacles frequently experienced by Critical Care nurses in the provision of nursing care.

## MATERIALS & METHODS

A cross-sectional survey was conducted between January to May 2023, to include 137 nurses working in Critical Care units of two hospitals (one public, one private) of Peshawar, Khyber Pakhtunkhwa, Pakistan, though convenient sampling. A structured and adopted questionnaire was used for data

collection, taken from one of the studies conducted in US after taking permission.<sup>18</sup> The sample size was calculated using open EPI software. All those Critical Care nurses were included in the study having more than one year of clinical experience in Critical Care units after registration with Pakistan Nursing Council, and those who were willing to participate after informed consent. Data collection was started after approval from Institution Review Board committee (Ref No: IRC/23/06) of Peshawar Institute of Cardiology. Participants were given the authority to withdraw from the study at any stage of the data collection. Different strategies were used to inform Critical Care nurses about the study, such as emails and WhatsApp messages from head nurses, managers, and directors who agreed to support the study. Participants were instructed on how to complete the questionnaires, and given reminders, if needed. Performance obstacles were measured on the basis of equipment use, work environment, and availability of resources. The obstacles were categorized based on the components of the work system model.<sup>6</sup> The four types of models included in this study were *Task*, *Environmental*, *Organizational*, *Technological* or tools. The *Task* is nursing related activities; *Environmental* components are distraction from family members, difficulty finding a place to sit and complete paper work, patient rooms are not close to each other; *Organizational* components are delay in getting medication from pharmacy, receiving medical order for patient, getting supplies from central stock, and change of shift report takes longer than required; and *Technological* is the equipment and availability of stock.

The questionnaire included 37 questions about the obstacles experienced by the Critical Care nurses in a specific duty hour (the questionnaire is available at <http://www2.fpm.wisc.edu/seips/SEIPS%20Home%20Page/Projects/projects.html>). Three variables were included for demographics, 18 items in nominal scale (yes or no), and 9 items in semantic differential response format (a 5-point rating scale with bipolar adjective pairs such as orderly – disordered, and noisy - calm) was used. The questionnaire contained both positively and negatively worded items. Data from 137 nurses were gathered, each questionnaire was checked for completeness before any statistical analysis was done. A further analysis of five questionnaires was not included since fewer than 60% of the items were answered. Float or helping nurses, who completed the questionnaires were disqualified from the analysis, as these nurses typically have minimal expertise of particular Critical Care units, which may cause them to face challenges that Critical Care nurses may not.<sup>19</sup> The information from the questionnaires were manually entered into SPSS. Using information from 129 CCU nurses, univariate descriptive statistical analyses were carried out.

## RESULTS

This study included 129 eligible participants from public (72.9%) and private (27.1%) hospitals. The majority (79.1%) of the participants were males, with females accounting for 20.9%. The mean age of the participants was  $28.22 \pm 4.34$  years, with most belonging to the age group of 17-26 years (34.9%), followed by the age group of 27-29 years (31%). Most Critical Care nurses had qualification of Bachelor of Science in Nursing (BSN)

(77.5%), 20.9% had diploma in nursing and 1.6% had a Master of Science in Nursing. The average experience of the nurses were 5.24 years, with most CCNs having experience of 1-3 years

(38%), followed by 4-6 years of experience (37.2%). Most of the nurses had been assigned one patient during shifts (45.5%) followed by two patients (31%) as shown below in table 1.

**Table 1: Sociodemographic Variables of Subjects (n=129).**

Variables	Frequency	Percentage	
Gender	Male	102	79.1
	Female	27	20.9
Age Groups (Years)	17-26	45	34.9
	27-29	40	31
	30-32	28	21.7
	33-48	16	12.4
Qualifications	Diploma in Nursing	27	20.9
	Bachelor in Nursing	100	77.5
	Master in Nursing	2	1.6
Overall experience (Years)	1-3	49	38
	4-6	48	37.2
	7 and above	32	24.8
Type of hospital	Public	94	72.9
	Private	35	27.1
Number of patients assigned to each nurse in a shift	1	59	45.7
	2	40	31
	3	27	20.9
	4	3	2.3
Number of patients admitted in each shift of a nurse	0	49	38
	1	21	16.3
	2	22	17.1
	3	32	24.8
	4	4	0.8
Number of patients discharged in each shift of a nurse	5	1	1.3
	0	17	13.2
	1	25	19.4
	2	18	14
	3	45	34.4
	4	1	0.8
Number of nursing assistants in a shift	5	23	17.8
	0	20	15.5
	1	47	36.4
	2	43	33.3
	3	19	14.7

The results of the statistical analyses conducted on performance obstacles are mentioned in Tables 2 and 3. Table 2 identifies the

obstacles perceived by the CCU nurses, and categorizes them into the four work system based models.

**Table 2: Univariate analysis of various obstacles (n=129).**

Obstacles	Yes	Percent	Model
Spent much time for teaching family members	98	76	Task
Delay in getting medication from pharmacy	83	64.3	Organizational
Distraction from family members	67	51.9	Environmental
Delay in receiving medical order for patient	67	51.9	Organizational
Wait for Equipment used by other	65	50.4	Technological or instruments
Spent much time to orienting another nurse	62	48	Task
Difficulty finding a place to sit and complete paper work	60	46.5	Environmental
Delay in getting supplies from central stock	58	45	Organizational
The change of shift report takes longer than they should	55	42.6	Organizational
Patient room are not closed to each other	49	38	Environmental
Equipment condition is poor	49	38	Technological or instruments
Equipment is not organized in manner	48	37.2	Technological or instruments
Paper work	78	60.5	Organizational
EMR	51	39.5	
Spent much time for searching my patient's chart	46	35.7	Organizational
Critical Care unit is not well stocked	31	24	Technological or instruments
Inadequate information received from physician regarding patients	28	22.5	Organizational
Inadequate Information received from previous shift nurse	25	19.4	Organizational

The most common obstacles were identified as: spent much time in teaching family members (76%), delay in receiving medication from pharmacy (64.3%), distraction from family members (51.9%), delays in receiving medical orders (51.9%), waiting for equipment used by others (50.4%), spending much time to orient new nurses (48%), difficulty finding a place to sit and complete paper work (46.5%) (paper work 60.5%, electronic medical record sheet, EMR 39.5%), delay in getting supplies from central stock (45%), change of shift takes longer time (42.6%), work environment was hectic (38.4%), poor equipment condition (38%), patient rooms are not close to each other (38%), and equipment is not properly organized (37.2%). These 13 performance obstacles are representative of different elements of the work system, including the Environmental (4 obstacles),

Organizational (4 obstacles), Task (2 obstacles), and Technologies or instruments (3 obstacles), as shown in Table 2.

Table 3 shows the details of semantic responses of CCU nurses to measure their performance obstacles. The Organizational model showed the help received from nursing assistants as useless (14.9%) and delay (13.5%), help received from unit receptionists are delay 14.9%, useless 9.2%, and help from other Critical Care nurses as useless (7.3%) and delay (3.7%). In Environmental model, the common reported obstacles in work place are hectic (38.4%), crowded (29.7%), noisy (24.5%), disorganized patients' room (11.6%), and disorganized workplace (11.5%).

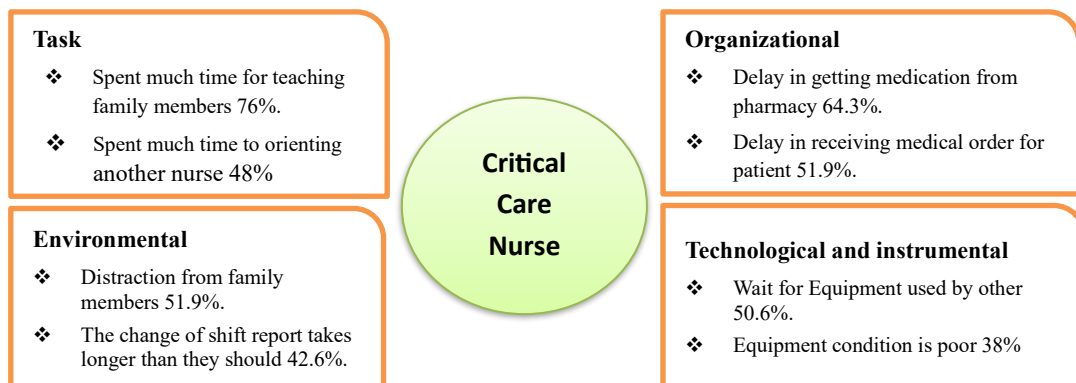
**Table 3: Responses of CCU nurses to measure performance obstacles (n=129).**

Variables	Responses on a scale of 1 – 5 (%)					Model
	1	2	3	4	5	
Help received from nursing assistants	Useful 26 (27.7)	24 (25.5)	22 (23.8)	8 (8.5)	Useless 14 (14.9)	Organizational
Help received from nursing assistants	Timely 34 (35.4)	23 (24)	23 (24)	3 (3.1)	Delay 13 (13.5)	Organizational
Help received from other Critical Care nurses	Useful 55 (50)	18 (16.4)	21 (19.1)	8 (7.3)	Useless 8 (7.3)	Organizational
Help received from other Critical Care nurses	Timely 53 (49.5)	23 (21.5)	18 (16.8)	9 (8.4)	Delay 4 (3.7)	Organizational
Help received from unit receptionists	Useful 33 (33.7)	17 (17.3)	24 (24.5)	15 (15.3)	Useless 9 (9.2)	Organizational
Help received from unit receptionists	Timely 30 (31.9)	24 (25.5)	18 (19.5)	8 (8.5)	Delay 14 (14.9)	Organizational
Workplace	Noisy 27 (24.5)	23 (20.9)	26 (23.6)	13 (11.8)	Quiet 21 (19.1)	Environmental
Workplace	Crowded 33 (29.7)	19 (17.1)	22 (19.8)	19 (17.1)	Roomy 18 (16.2)	Environmental
Workplace	Hectic 43 (38.4)	26 (23.2)	17 (15.2)	15 (13.4)	Calm 11 (9.8)	Environmental
Workplace	Organized 43 (38.1)	33 (29.2)	15 (13.3)	9 (8)	Disorganized 13 (11.5)	Environmental
Patient room	Organized 24 (18.6)	12 (9.3)	52 (40.3)	26 (20.2)	Disorganized 15 (11.6)	Environmental

**DISCUSSION**

The present study was meant to explore the performance obstacles experienced by the nurses working in the Critical Care units. A number of factors were identified as obstacles coming in the way of nurses' performance. The most common

obstacles were: spending too much time with the family of patients, delay to receive medications from pharmacy, distraction from the family members of patient, spending much time for orienting another nurse, waiting for equipment in use by others, and time taken to receive medical orders (Figure 1).



**Figure 1: Model categories of different obstacles identified by CCU nurses (n=129).**

In a similar study<sup>11</sup> the most frequently faced performance obstacles in the US hospitals were problems associated with family, time consumed in getting medicine from pharmacy, unavailability of medical devices due to others using it, room of the patient not well equipped, not getting proper place for sitting to do file work in the area, misplacement of files and documents of the patients, and time consumed in following new medical records.<sup>11</sup> Most of the participants in the present study were males and it could be that male nurses handle critical conditions better than females. Usually female nurses get nervous when encountering critical situations in Critical Care units. This is in contrast with the study conducted in Egypt where most of the nurses were female.<sup>1</sup>

Employees retention is now becoming a major issue in the MTI system; most of the nurses who are aged and experienced are leaving their jobs due to job insecurity, lack of retirement benefits, and salary,<sup>20</sup> in contrast with other studies in which most of the nurses were above 25 years of age.<sup>1,15</sup> Most of the participants have 1-3 years of experience, followed by 4-6 years of clinical experience. In a study conducted in one of the hospital of Egypt on the performance obstacles more than half of the nurses have less than or equal to five years of clinical experience.<sup>2</sup> Another study showed that all 1116 nurses were having clinical experience from 12 to 17 years.<sup>17</sup> Most of the nurses have been assigned one patient during shift followed by two patients. This in contrast with a study conducted on performance obstacles, in which more than five patients were assigned to one staff nurse in a single shift.<sup>1</sup> There are differences in nurse-patients ratio in hospitals; the settings which report 0.5-0.6 nurse-patient are supported by assistant nurses for the provision of care of patients based on different needs.<sup>21</sup>

A previous study has identified several performance obstacles in healthcare settings, some of which are unique to the environment.<sup>22</sup> For instance, nurses working in Critical Care units have a major issue of patient transportation for medical

procedures and referrals to wards within the hospital or outside of the hospitals, while family relations can also pose challenges as they may require significant attention from nurses.<sup>23</sup> Similarly, in our study most of the reported issues were related to family of patients, in spending more time for teaching family members.

Among the major problems encountered by Critical Care nurses were that the help received from assistant nurses were useless (14.3%), and delay in getting help (13.5%). In a similar study conducted in the USA,<sup>18</sup> the help from assistant nurses was useless (5%) and delay in getting help was also 5%. The issue related to the help of unit receptionist was delay (14.9%) and useless (9.2%). In contrast to our result the percentage of these issues was 1% in the US study. The problem related to the help received from other Critical Care nurses were useless (7.3%) and delay (3.7%). In a similar study, the result was 0% and 1% respectively; the reason could be not receiving proper ongoing-professional trainings and workload issue.<sup>18</sup>

The strength of the current study is that it is the first study conducted in Pakistan on the obstacles Critical Care nurses have to face, and that it includes relatively younger nurses. Limitations of the study were that type of Critical Care units were not specified and limited sample were taken.

## CONCLUSION

Critical Care nurses face a number of important obstacles in their work systems that potentially affect their performance and the delivery of patient care.

## RECOMMENDATIONS

The results of this study could help to restructure the Critical Care units with better contribution towards decreasing the obstacles, so as to deliver quality of nursing care in a safe working environment. Healthcare policy makers need to do proper intervention to reduce these challenges faced by Critical Care nurses.

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