

# OPTIMIZING NURSING PERFORMANCE IN CRITICAL CARE: KEY FACTORS CONTRIBUTE TO OR MITIGATE PERFORMANCE OBSTACLES AMONG NURSES

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## ABSTRACT

**Background:** The work environment in critical care units presents obstacles that hinder nurses from effectively carrying out patient care tasks, thereby compromising the quality and safety of the care they deliver. The study was conducted with the aim to identify the factors that increase and decrease the performance as obstacles of nurses working in critical care units.

**Methodology:** The study was conducted in the critical care units of tertiary care hospital of KPK, using cross-sectional descriptive design. The study was conducted between May and October 2024, having a sample size of 221 and using convenient sampling technique. A valid and reliable questionnaire of Carayon and Gurses were used for data collection, while SPSS 22 were used for analysis, it was assured to protect the ethical rights of the study participant.

**Results:** The study included 221 nurses, with 53.4% being female and a mean age of 30.5 years. Key factors affecting their performance included involvement in intra-hospital patient transport (81.4%), concerns about the physical work environment (75.1%), poor handoff communication during shift changes or transfers (88.2%), and the need for accessible, well-maintained equipment (83.7%). Participants stressed key factors that could reduce performance obstacles, including clear communication policies (60.2%), a well-organized and functional work environment (74.2%), timely and accurate information from physicians (77.8%), and improved access to patient charts or electronic records to streamline documentation (70.6%).

**Conclusion:** The study revealed that critical care nurses encounter common performance obstacles—primarily related to extra tasks, the physical environment, organizational policies and tools. It is necessary to address these issues through strategies to improve nurses performance.

**Keywords:** Performance Obstacles, Nurses, workload, Critical care, Workplace, Working Conditions.

## INTRODUCTION

Nurses is considered as the backbone of healthcare industry, so their role remain vital in the provision of care, while nurses working in critical care units (CCUs) play more effective role as they deals with the

patients who are suffering from critical illness, or they are at significant risk for death [1]. The critical care units are specialized units of the hospital especially for critical ill patients that required closed monitoring,

therefore the environment are fast-paced, nurses rely of highly advanced and technical machines. Professional nurses who have worked in these units for a while are enthusiastic about their work environment and find their on-duty time to be both engaging and demanding. However, qualified, highly skilled and experienced nurses are required for CCUs, but a growing shortage of professional nurses is a matter of concern to deal with the sudden transformation of the environment of CCUs regarding patients safety and quality care [2].

Critical care nurses (CCNs) work in high pressure and challenging environment for the improvement of recover process, therefore nurses continuously communicate with health care providers, patients and their family to inform them regarding the updated status of the patient and treatment. Due to the increased risk of infection among patients in critical care units, appropriate infection prevention and control measures are becoming more and more necessary to guarantee the quality of care [3]. To provide quality care and improve recovery of the patient CCNs must required effective, accurate and efficient procedure [1]. Together with the healthcare team, CCN plan, organize, and carry out patient care to address their physical, psychological, cultural, and spiritual requirements. Moreover they are also responsible to keep balance while working in highly advance technological environment by ensuring the patient dignity, safety and comfort [4]. The critical environment of the CCU made it challenging for nurses, and obstacles occurred while dealing with critical patients in the provision of quality care and patient safety [5]. The aspects of the immediate workplace that limit nurses' ability to carry out their responsibilities are known as performance obstacles [6]. Critically ill patients' recovery is greatly aided by the nurses who work in intensive care units. Their quality of care and quality life are negatively impacted by a number of challenges they faced, including exhaustion, noisy atmosphere, busy, and crowded work environments; a lack or misplaced equipment; insufficient information searching for supplies; workload, and family distractions in the unit that also increase risk towards medication errors [7].

Performance obstacles affect the nurses physical health as well as psychological health, while it also increase the workload of nurses but also increase risk towards patient safety [8]. Nurses require a work environment that supports their professional nursing practices in order to function effectively. It makes sense that providing high-quality treatment and guaranteeing the

safety of both patients and employees are significantly impacted by the workplace. It is crucial to work on lowering these barriers in order to improve the results during duty hours [9, 10]. Long shifts, work pressure, professional stress, and life-or-death situations are common for nurses. One of the most crucial elements of hospital health care delivery is the medical staff member who has the hardest time committing to and participating in patient care. It is expected of nurses to maintain the highest standards of professionalism and quality, to continuously increase their output and efficiency, and to treat every patient and their family with kindness. A nurse's effectiveness can be seen in the quality of their care providing to patients in CCUs [11]. Nurses who encountered such type of obstacles will become irritable and short-tempered, which leads to fatigue.

In CCUs nurses provided high quality care, excellent services and always kept patient safety as priority, but instead of appreciation nurses faced criticism and disciplinary actions from the administrative offices that leads to disappointment among nurses [12]. To improve patient safety and quality care, the aim of the study was to identify the factors the enhance nurses performance and also those obstacles that affect their performance.

### Methodology

This study employed a cross-sectional research design to assess the factors that enhance and affect the performance of nurses working in Critical Care Units (CCUs). The design was chosen to capture a snapshot of the prevailing factors influencing nursing performance at a single point in time. The research was conducted in the Critical Care Units of three tertiary care hospitals located in Khyber Pukhtankhwa, Pakistan. These hospitals were selected based on their patient load, availability of specialized nursing staff, and advanced critical care facilities.

The study population comprised nurses currently working in the CCUs of the selected tertiary hospitals. A total of 221 nurses participated in the study. The sample was selected through convenience sampling, ensuring representation from all three hospitals. The inclusion criteria for this study was; registered nurses working full-time in CCUs, nurses with at least 6 months of experience in critical care, willingness to participate in the study. Nurses on probation or undergoing orientation, part-time or trainee nurses and those unwilling to provide informed consent were excluded from the study.

Data was collected from may to October 2024, and participants were briefed about the study purpose, and confidentiality was assured. The data was collected in two steps; step one contain the demographic data of the participants while step two contain valid and reliable questionnaire of Carayon and Gurses performance obstacle that contain 4 dimension (Environmental obstacles, obstacles related to tasks, tools as obstacles, and organizational obstacles) was 12 items performance obstacles that have dichotomous response of (Yes / No) [13]. The Cronbach alpha of each domain was environment (0.78), organization (0.89), tools (0.79), and tasks (0.91).

Data were analyzed through SPSS 22 as descriptive (frequencies, percentages, means, and standard deviations) were used to summarize the data. Pearson correlation test were applied to identify the association of performance obstacles with demographic data.

Ethical approval was obtained from the ethical review committee. Informed consent was obtained from all participants, and data confidentiality and anonymity were strictly maintained throughout the study.

## Results

The total number of participants in the study was 221, with a slight majority of female nurses (53.4%) and 103 than male nurses (46.6%). The mean age of the participants were (30.5 ± 3.44) years, suggesting that the majority of CCU nurses are in their early 30s, possibly representing a young and active workforce. The high number of participants were married (n=113) 51.1%, and single were (n=108) 48.9%. Most nurses held a BSN 4-year degree n=88 (39.8%), followed by Post-RN BSN n=64 (29.0%), Diploma in Nursing n=41 (18.6%), and MSN 28 (12.7%), this reflects a well-qualified workforce, with a significant portion possessing bachelor's or higher-level education. The largest group worked in Emergency Departments n=85 (38.5%), followed by ICU/CCU n=66 (29.9%), Medical/Surgical ICUs n=39 (17.6%), NICU n=27 (12.2%), and PICU n=4 (1.8%). Most participants had 1-2 years n=75 (33.9%) or 3-5 years n=61 (27.6%) of experience, while n=58 (26.2%) had 6-10 years, and n=27 (12.2%) had over 11 years. Nurses handled a varying number of patients per shift, 1-10 patients: n=83 (37.6%), 11-20 patients: n=35 (15.8%), 21-30 patients: n=72 (32.6%) and 31 and above: n=31 (14.0%).

**Table: Demographic data of the participants**

	Frequency (n-221)	Percentage (%)
<b>Gender</b>		
Male	103	46.6%
Female	118	53.4%
<b>Age</b>		
Mean	(30.5 ± 3.44)	
<b>Marital status</b>		
Single	108	48.9%
Married	113	51.1%
<b>Education</b>		
Diploma in nursing	41	18.6%
Post-RN BSN	64	29.0%
BSN 4 years	88	39.8%
MSN	28	12.7%
<b>Duty Department</b>		
Emergency	85	38.5%
ICU / CCU	66	29.9%
NICU	27	12.2%
PICU	4	1.8%
Medical / Surgical ICU	39	17.6%
<b>Experience</b>		
1 - 2 years	75	33.9%
3 - 5 years	61	27.6%
6 - 10 years	58	26.2%
11 and above	27	12.2%

Number of patient deal in shift		
1 - 10 patients	83	37.6%
11 - 20 patient	35	15.8%
21 - 30 patients	72	32.6%
31 and above	31	14.0%

#### Factors that enhance the performance obstacles for Nurses

In the first domain of tasks, the higher number of nurses 180 nurses (81.4%) reported that they are involved in accompanying patients during intra-hospital transport, which is common responsibility and increase workload and impact CCN performance. In the second domain of physical work environment, 166 nurses (75.1%) acknowledged the adequacy of their physical workplace environment during duty, but still considered that it required improvement. In the organization domain, majority of the nurses 195 nurses (88.2%) reported experiencing poor handoff

during shift changes or patient transfers. It is a vital concern of the participant that affects the patient safety and efficiency during treatment, and monitoring, while in transition communication is very important between the staff. In the last domain of technology and tools, most of the participants 185 nurses (83.7%) focused on the availability and maintenance of essential equipment. CCN considered that in critical areas the access and availability of medical equipment is very necessary to responded to any rapid and unpredictable changes in their health status (see table 2).

**Table 2: Factors that enhance the performance obstacles and affects quality of care in CCU**

Domain	Items	Yes	No
Tasks (p1)	Transport of patient during intra-hospital shifting	180 (81.4%)	41 (18.6%)
Enviroment (P3)	Physical work environment	166 (75.1%)	55 (24.9%)
Organization (P10)	Poor handoffs	195 (88.2%)	26 (11.8%)
Technology and toll (P8)	Poor Maintenance and availability of Equipment	185 (83.7%)	36 (16.3%)

#### Factors that decrease the performance obstacles and improve quality of care in CCU

In task domain, majority of the respondents 133 nurses (60.2%) considered that their should be clear communication policies and support staff to manage family expectations in high-stress environments, to reduced extra burden and saving time while interaction with family. In environmental domain most participants 164 nurses (74.2%) mentioned that a well-organized, spacious, and functional environment can minimize delays, reduce stress, and

improve overall care efficiency. In organizational domain 172 nurses (77.8%) highlighted the importance of receiving timely and accurate information from physicians, to deliver appropriate treatment, monitor patients effectively. In the domain of technology and tools, the maximum participants 156 nurses (70.6%) reported that searching for patient charts, need to be improved through chart or electronic record to streamline documentation and information. (see table 3).

**Table 3: Factors that decrease the performance obstacles and improve quality of care in CCU**

Domain	Items	Yes	No
Tasks (P4)	Dealing with many family—related issues	133 (60.2%)	88 (39.8%)
Enviroment (P9)	Workspace design	164 (74.2%)	57 (25.8%)
Organization (P11)	Information from physicians	172 (77.8%)	49 (22.2%)
Technology and tool	Seeking for patient charts	156 (70.6%)	65 (29.6%)

#### Association of performance obstacles with demographic variables

Table 4 illustrated that education and no of patient is weak negatively, while gender, department and

experience are positive weakly associated with performance obstacles.



**Table 4: Correlation of Performance obstacles with selected variables**

	1	2	3	4	5	6
1: Gender	-	-.301**	-.068	-.024	.006	.036
2: Education		-	-.112	-.208**	.146*	-.110
3: Department			-	.207**	-.098	.013
4: Experience				-	.086	.126
5: No_of_pt					-	-.093
6: Performance Obstacles						-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Discussion

The study was conducted with the aim to identify factors that contribute or mitigate Performance Obstacles in Critical Care units among Nurses.

In the current study majority of the participants were female nurses (53.4%), the mean age of the participants were (30.5 ± 3.44) years, and the married participants were (n=113) 51.1%. Most of the respondents professional qualification was BSN 4 years degree n=88 (39.8%), while emergency department staff was n=85 (38.5%), nurses having experience of 1-2 years were n=75 (33.9%), and nurses dealing 1-10 patients in each shift were n=83 (37.6%). A study conducted in India were having in line demographic characteristics compare to our study where majority of the participants were female n=100 (97.1%), age 25 were n=52 (50.5%), married n=85 (82.5%), BSN Qualification n=64 (62.1%), and experience of 5 years n=54 (52.4%) [2]. Another study having similar findings were conducted in Egypt revealed that (93.3%) were females, (63.9%) nurses were in age group less than 25 years, (65.5%) were married, (67.2%) of them were graduates nurses and (60.5%) were having 5 years experience [1]. A Nepali study illustrated that all the nurses were females, the higher number n=60 (58.3%) Of nurses age were 23 and above, unmarried were n=88 (85.4%), 3 years diploma qualified were n=65 (63.1%), staff nurses titled were n=83 (80.6%), and having experience of 1 year were n=58 (56.3%) [14]. A study completed in Iran showed that most of the respondent were males n=69 (90.5%), age group less than 34 were n=37 (46.3%), and experience of 3 to 6 years n=33 (41.2%) [7]. A Pakistani study demonstrated that higher in number were male n=158 (50.6%), age group of 25-34 years n=174 (55.8%), qualification of 3 years Diploma in nursing n=195 (62.5%), and experience of 1-5 years n=249 (79.9%) [15].

In the present study nurses considered that factors that increase the performance obstacles were; in task-related responsibilities, 81.4% of nurses reported frequent involvement in accompanying patients during intra-hospital transport. In the physical work environment, 75.1% mentioned regarding the physical space of the CCUs and mentioned regarding the improvements are still needed. In the organizational domain, 88.2% of nurses reported poor handoff communication during shift changes or patient transfers. In the domain of technology and tools, 83.7% of participants emphasized the importance of accessible and well-maintained equipment. The reason that nurses considered transfer of patient from one department or for investigation is a common practice but they consume so much time, increase work burden and affect the performance of the study participants. The participants also pointed the physical space of the critical care units, it may be due to insufficient or congested environment limit the movement of nurses, difficult to transport necessary equipment and engaged patient for any emergency interventions. The respondents also highlighted that poor handoff became in obstacle within organization, it may be due to poor handoff leads to poor communication that enhance serious concern regarding the ongoing condition of patients, new patients history and any new orders that can compromise the safety of patient. The CCNs considered that access and maintenance of vital equipment is necessary, to rapidly responding to unpredictable patient changes in critical care settings. A study conducted in Pakistan pointed that factors that affect the performance of nurses are The mostly reported issue was delayed medication delivery from the pharmacy (71.9%), long space between patient rooms (69.5%), searching for supplies (64.1%) and interruptions from family members (62.8%) negatively affected their efficiency [15]. Another study conducted

in Pakistan revealed that the most frequent obstacle was teaching family members of the patient (76%), followed by delays in receiving medication from the pharmacy (64.3%). Other significant obstacles included distractions from family members and delays in receiving medical orders (both 51.9%), waiting for equipment being used by others (50.4%), and spending excessive time orienting new nurses (48%) [3].

In the present study certain factors were highlighted by the participants in all the four domains; such as 60.2% nurses mentioned that communication policy is important to deal smoothly with patient family in such stressful environment, 74.2% emphasize that critical units should be functional and waste to decrease delays and movements, while 77.8% nurses noted that patient information should be available timely and clearly for patient continuous care and treatment, and 70.6% stressed that there should be paper and electronic data base of the patient to access them easily to improve care and information flow of the patients are certain items that help the nurses to decrease performance obstacles. According to a research conducted in France, the majority of ICUs did not have unrestricted visiting rules, waiting rooms for families, or formal procedures for informing families [17]. That demonstrated the need for visiting policies and supervision of family members in ICUs [16]. Families play an important part in patient care, and excellent communication between nurses and families can have a favourable impact on nursing care [17]. Nurses can shift their involvement from a threat to a benefit [18]. A Swedish study revealed that the ICU boasts have equipment and technologies more than any other unit in the hospital. These instruments play a critical role in the quality of care in ICUs. Ventilators, infusion pumps, monitoring, and dialysis add to the complexity of intensive care unit medicine. Technology encompasses both the equipment itself and the knowledge of how to use it [19]. These pieces of equipment must be regularly inspected and changed when they become old and inoperable. The budget for capital purchases in educational hospitals is limited, which may make caring harder [20]. Another study showed that in circumstances where there are a large number of patients and a small number of nursing staff, it appears that the staff may focus solely on the most important activities, rather than tasks that should be done by others. It is worth mentioning that some books have referred to ineffective care as worthless care [21]. It was also highlighted that, one of the reasons for the inadequate quality of care was performing jobs

unrelated to nursing staff, which increases work pressure. There is debate over the negative relationship between the amount of personnel and their workload, which impacts the quality of care delivered [22]. A qualitative research of nurses' professional communication experiences examined such communications in the context of physician-patient communication deficits and found that nurses bridge the gap between the doctor and the patient [23].

The study has certain limitations, such as its cross-sectional design, which reflects the researcher's observations at a single point in time. Therefore, a longitudinal study is recommended. Additionally, the study was conducted in only one province, limiting its generalizability. A nationwide study can be conducted in the future to address this limitation.

### Conclusion

This study highlights that despite working in different healthcare settings, critical care nurses face common performance obstacles that impact their ability to deliver high-quality care. The most frequently reported challenges were related to the physical work environment, availability of tools, and task demands, with fewer—but still significant—barriers associated with organizational structure. Some obstacles can be addressed through immediate operational changes, while others require structural or policy-level interventions. To improve nursing performance and patient outcomes, hospital administrators and nurse managers must prioritize identifying and removing performance obstacles, particularly those related to tools, workspace design, and organizational inefficiencies.

### REFERENCE:

- Ahmed WA, Soliman ES, Shazly MM. Staff nurses' performance obstacles and quality of work life at Benha University Hospital. *Nurs Health Sci*. 2018 Mar;7:65-71.
- Ibrahim I, Hassan F, Khafagy M, Sleem W. Association between Performance Obstacles and Quality of Work life among Intensive Care Nurses. *Mansoura Nursing Journal*. 2015 Jan 1;2(1):147-57.
- Rahman I, Dad A. Performance obstacles usually experienced by Critical Care nurses. *Journal of Rehman Medical Institute*. 2023;9(4):13-8.

- Institute of Medicine of the National Academies. The Richard and Hinda Rosenthal Lectures 2003: Keeping Patients Safe-Transforming the Work Environment of Nurses. National Academies Press; 2004 Nov 30.
- Baxi VV, Banerjee S, Patel MA, Sinha R, Khan S. Enhancing Patient Safety in Critical Care: Challenges, Strategies, and Emerging Innovations. *Journal of Medical and Dental Frontiers*. 2024;2(1):16-24.
- Eldeeb G. Performance obstacles in ICU and their effects on patient safety at selected Hospitals in Jazan Region, KSA. *IOSR Journal of Nursing and Health Science*. 2016;5(6):26-36.
- Rajaeian Z, MasoudiAlavi N. Barriers to nursing performance from the perspective of nurses working in intensive care units. *Journal of Critical Care Nursing*. 2018 Jul 10;11(1):1-6.
- Ragab SA, Mohamed Al Torky MA, Ghallab SA. Assessment of Performance Obstacles as Perceived by Nurses in Intensive Care Units. *Assiut Scientific Nursing Journal*. 2017 Dec 1;5(12):63-73.
- Duffy JR. Quality caring in nursing and health systems: Implications for clinicians, educators, and leaders. Springer Publishing Company; 2022 Dec 22.
- Hegazy AM, Ibrahim MM, Shokry WA, El Shrief HA. Work environment factors in nursing practice. *Menoufia Nursing Journal*. 2021 Nov 1;6(2):65-73.
- Susiarty A, Suparman L, Suryatni M. The effect of workload and work environment on job stress and its impact on the performance of nurse inpatient rooms at Mataram city general hospital. *Scientific research journal*. 2019;7(6):33-40.
- Allah AR, Elshrief HA, Ageiz MH. Developing strategy: A guide for nurse managers to manage nursing Staff's work-related problems. *Asian Nursing Research*. 2020 Aug 1;14(3):178-87.
- Gurses AP, Carayon P. Performance obstacles of intensive care nurses. *Nursing research*. 2007 May 1;56(3):185-94.
- Poudyal S, Sharma K. Performance Obstacles and Workload of Nurses Working in Critical Care Unit at Teaching Hospital. *Journal of Karnali Academy of Health Sciences*. 2023 Sep 1;6(2).
- Ullah I, Ali S, Hussain R, Hussain A, Iqbal M, Sultan A. Factors Affecting Nurses Performance Working in Intensive Care Units at Tertiary Care Hospitals Peshawar: Nurses Performance Working in ICU. *Pakistan Journal of Health Sciences*. 2023 Jun 30;72-6.
- Garrouste-Orgeas M, Vinatier I, Tabah A, Misset B, Timsit JF. Reappraisal of visiting policies and procedures of patient's family information in 188 French ICUs: a report of the Outcomerea Research Group. *Annals of intensive care*. 2016 Dec;6:1-7.
- Østergaard B, Clausen AM, Agerskov H, Brødsgaard A, Dieperink KB, Funderskov KF, Nielsen D, Sorknæs AD, Voltelen B, Konradsen H. Nurses' attitudes regarding the importance of families in nursing care: A cross-sectional study. *Journal of Clinical Nursing*. 2020 Apr;29(7-8):1290-301.
- Burns KE, Misak C, Herridge M, Meade MO, Oczkowski S. Patient and family engagement in the ICU. Untapped opportunities and underrecognized challenges. *American journal of respiratory and critical care medicine*. 2018 Aug 1;198(3):310-9.
- Tunlind A, Granström J, Engström Å. Nursing care in a high-technological environment: Experiences of critical care nurses. *Intensive and critical care nursing*. 2015 Apr 1;31(2):116-23.
- Mkalaf KA. A study of current maintenance strategies and the reliability of critical medical equipment in hospitals in relation to patient outcomes (Doctoral dissertation, University of Wollongong).
- Aghabarari M, Dehghan Nayeri N. Futile Care: challenges of applying futility concept in caring domain. *Journal of hayat*. 2015;21(1):1-5.
- Schubert M, Ausserhofer D, Desmedt M, Schwendimann R, Lesaffre E, Li B, et al. Levels and correlates of implicit rationing of nursing care in Swiss acute care hospitals-a cross sectional study. *Int J Nurs Stud*. 2013;50(2):230-9.
- Azimi Lolaty H, Ashktorab T, Bagheri Nesami M, Bagherzadeh Ladari R. Experience of professional communication among nurses working in educational hospitals: a phenomenological study. *Journal of Mazandaran university of medical sciences*. 2011;21(85):108-25.