

# Performance Obstacles and Workload of Nurses Working in Critical Care Unit at Teaching Hospital

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### ABSTRACT

**Background:** Performance obstacles are the elements of immediate workplace that restrict nurses' capacity to perform their duties. Performance obstacles are significant predictor of nurses' workload, which lowers their satisfaction and, in turn, affects their quality of work life. This study aimed to assess the performance obstacles and workload of nurses working in critical care unit.

**Methods:** The descriptive cross-sectional study was carried out among all the 103 nurses working in critical units of selected hospital. Non-probability total enumerative sampling technique was used. Data were collected using self-administered questionnaire from 5th March 2023 to 5th April 2023. Data were analyzed in SPSS version 15 using descriptive statistics for the description of variables, and Spearman correlation coefficient was calculated to measure the relationship between variables.

**Results:** Study revealed that, among the four domains of obstacles, nurses experienced higher performance obstacles in task domain (50.0%), followed by work environment (37.5%), whereas lowest in organization domain (28.5%). The median overall performance obstacle score reported by nurses was 36%. There was positive correlation between performance obstacles related to tasks with workload domains of mental demand ( $r=0.257$ ,  $p=0.009$ ), physical demand ( $r=0.258$ ,  $p=0.009$ ), temporal demand ( $r=0.212$ ,  $p=0.031$ ) and efforts ( $r=0.250$ ,  $p=0.011$ ). Likewise, performance obstacles related to organization was positively correlated with mental demand ( $r=0.236$ ,  $p=0.017$ ), physical demand ( $r=0.246$ ,  $p=0.012$ ), temporal demand ( $r=0.361$ ,  $p<0.001$ ) and efforts ( $r=0.309$ ,  $p=0.001$ ). Further, positive correlation was found between performance obstacles related to tools with temporal demand ( $r=0.300$ ,  $p=0.002$ ) and efforts ( $r=0.201$ ,  $p=0.042$ ).

**Conclusion:** Nurses experience performance obstacles in the critical care units. Performance obstacles are positively correlated with the workload of the nurses. Therefore, efforts are needed to reduce performance obstacles of the nurses in the critical care unit.

**Keywords:** Performance obstacles; workload; nurses; critical care.

### INTRODUCTION

Performance obstacles are the elements of immediate workplace that restrict nurses' capacity to perform their duties.<sup>1,2</sup> Nurses working in intensive care unit have a significant role in recovery of critically ill patients. However, they experienced numerous obstacles such as noisy, hectic and crowded work environments, lack of or misplaced equipment, searching for supplies and family distractions in the unit,<sup>1,3</sup> which negatively affect their quality of care as well quality of work life (QWL).<sup>4,7</sup>

Performance obstacles at workplace increase nurses'

workload<sup>4,8,9</sup> and threats the patient's safety.<sup>1</sup> Further, nurse's workload affect their physical and psychological wellbeing.<sup>4,6</sup> Reducing workload by eliminating performance obstacles can improve nurses' QWL.<sup>4,5</sup> Given the emphasis is on quality of work life and performance, there is scarcity of research studies in the context of Nepal. So, this study aimed to identify the performance obstacles and workload experienced by nurses in critical care unit.

### METHODS

A cross-sectional study was conducted among nurses working in critical care units of Chitwan Medical College

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and Teaching Hospital (CMC-TH). This hospital is 700 bedded tertiary care hospital, located in central area where highly qualified health manpower is available and highly equipped critical care departments that provides 24-hour services from surgical, medical, neurological and pediatric critical care specialists. The population of the study was all the 103 nurses working in shift duty (morning, evening and night) in critical care unit and providing direct care to patient. Those nurses who were working as nursing officers and supervisors were excluded from the study. Non-probability total enumerative sampling technique was used for recruiting the nurses working in the critical care unit.

Structured self-administered questionnaire for socio-demographic information and professional related information was developed by researchers. It included age, sex, marital status, type of family, academic qualification, professional designation and work experience in intensive care units. Performance obstacles of nurses were measured by using Performance Obstacles of ICU Nurses: Questionnaire,<sup>10</sup> and modified in order to make it suitable to carry out the study. Questionnaire included 25 items categorized into four domains of performance obstacles: those related to work environment (8 items), organization (7 items), tools (6 items) and tasks (4 items). Combinations of both positive and negative items were used in questionnaire. Each item had a dichotomous scale; the response for these items was in yes, or no, scores ranged from one for Yes and zero for No. Negative items scores were reversed.

The workload of nurses was measured by the NASA Task Load Index (NASA-TLX) designed by Human Performance Research Group NASA-Ames Research Center Moffett Field, California.<sup>11</sup> The NASA-TLX consisted of six areas of mental demand (measuring mental activities e.g. thinking and deciding), physical demand (measuring the physical activities that needed pulling, pushing, turning etc.), temporal demand (measuring time pressure that felt during work), frustration level (feel insecure, desperate, offended, or disturb when doing their work), efforts (amount of hard work that workers need to accomplish level of performance) and own performance satisfaction (how they are satisfied with the results of their work) that deal with the workload of nurses experience in their job. The total scoring system for all dimensions ranged from 0 to 100 where higher scores indicated higher workload.

Ethical clearance was obtained from the Chitwan Medical College Institutional Review Committee (Ref: CMC-IRC/079/080-090), Bharatpur. Data collection permission was obtained from hospital authorities. After obtaining permission, the researchers went to the critical care units and identified the possible participants. Objective of the study was explained to them and written informed consent was obtained from them. Then, structured self-administered questionnaire was distributed and asked them to complete it based upon their experiences of that particular shift. Each respondent was given about 40-45 minutes to respond the questionnaire and researchers assembled the filled questionnaire immediately after completion. Data were collected from 5th March 2023 AD to 5th April 2023 AD. Data analysis was done in SPSS version 15 for Windows. Descriptive statistics such as frequency, percentage, median, interquartile range was used to describe socio-demographic, professional, performance obstacle and workload related variable. Inferential

statistics – Spearmann correlation test – was applied to measure the relationship between performance obstacle and workload. Statistical significant was set at  $p < 0.05$ .

## RESULTS

**Table 1** shows that more than half (58.3%) of the respondents belonged to age group of 23 years and above. All of them were female. Most of the respondents were unmarried (85.4%) and living in nuclear family (84.5%). Majority (63.1%) had completed PCL nursing and most (80.6%) of them worked in a staff nurse position. Similarly, more than half (56.3%) of the respondents had less than 12 months work experience.

**Table 1:** Respondents' Socio-demographic and Professional Characteristics

Variables		Frequency	Percent
<b>Age</b> Median =23years, IQR = 22 - 25, Range 19 - 33 years	<23 years	43	41.7
	≥23 years	60	58.3
<b>Marital status</b>	Unmarried	88	85.4
	Married	15	14.6
<b>Type of family</b>	Nuclear	87	84.5
	Joint	16	15.5
<b>Academic qualification</b>	PCL	65	63.1
	BN	9	8.7
	BSc.	29	28.2
<b>Professional designation</b>	Staff nurse	83	80.6
	Senior staff nurse	20	19.4
<b>Work experience in ICU</b> Median =12 month, IQR = 6-24, min=3 months max =65 months	<12 months	58	56.3
	12- 36 months	33	32
	>36 month	12	11.7

Among the four domains of work obstacles, the respondents experienced higher performance obstacles on task-related work (50.0%) followed by work environment (37.5%) whereas it was lowest on organization domain (28.5%). The median overall performance obstacles percentage score reported by nurses was 36% (**Table 2**).

**Table 3** shows that the respondents' median percentage score was higher on physical demand (85%), effort (85%), and mental demand (80%) of workload whereas lower on frustration (40%).

**Table 4** reveals that there was positive correlation between performance obstacles related to tasks, tools and organizations with workload domains of mental demand, physical demand, temporal demand and efforts.

## DISCUSSION

This study aimed to find out the performance obstacles and workload of nurses working in critical care unit. The study findings showed that nurses working in critical care units of CMCTH faced variety of performance obstacles at their work. Nurses' workload was also positively correlated with performance obstacles.

**Table 2:** Respondents’ Scores of Performance Obstacles in Different Domains

Domains	No. of Item	Possible Score	Obtained Range Score	Median Score (IQR)	Median Percent
Work environment	8	8	0-7	3 (2-4)	37.5
Tools	6	6	0-6	2 (1-3)	33.3
Tasks	4	4	0-4	2 (1-3)	50.0
Organization	7	7	0-6	2 (0-3)	28.5
Total	25	25	2-18	9 (7-11)	36.0

**Table 3:** Respondents’ Scores on Different Domains of Workloads

Dimensions	Obtained Score	Median Score	Score (Inter-quartile range)	Median Percent
Mental Demand	20-100	80	60-100	80
Physical Demand	15-100	85	60-100	85
Temporal Demand	10-100	75	50- 95	75
Efforts	10-100	85	60-100	85
Own Performance Satisfaction	5-100	75	50-95	75
Frustration Level	0-100	40	25-50	40

Possible Score: 0 to 100

**Table 4:** Correlation between Performance Obstacles and Workload of Respondents

Domains of Workload	Domains of Performance Obstacles							
	Work Environment		Tools		Tasks		Organization	
	rho value#	p value	rho value	p value	rho value	p value	rho value	p value
Mental Demand	-0.079	0.429	0.045	0.654	0.257**	0.009	0.236*	0.017
Physical Demand	0.015	0.881	0.017	0.864	0.258**	0.009	0.246*	0.012
Temporal Demand	-0.001	0.989	0.300**	0.002	0.212*	0.031	0.361**	<0.001
Efforts	-0.025	0.804	0.201*	0.042	0.250*	0.011	0.309**	0.001
Own Performance Satisfaction	-0.094	0.343	0.026	0.793	0.158	0.110	0.111	0.265
Frustration Level	-0.041	0.684	-0.046	0.641	0.017	0.863	0.095	0.340

\*Correlation is significant at the 0.05 level

\*\*Correlation is significant at the 0.01 level

# Spearman Rho value

The finding of our study revealed that nurses working in critical care units experienced higher performance obstacles on tasks domain (50.0%) whereas lower on organization level (28.5%). The overall performance obstacle reported by nurses was 36%. An Egyptian study found that nearly two-thirds (63%) of staff nurses reported high levels of performance obstacles in critical care units, while 37% reported low levels of performance obstacles.<sup>5</sup> Similarly, another study in Greek found that the most crucial difficulties were insufficient hospital materials, a lack of appropriate space and facility design, and emotional distress in ICUs.<sup>12</sup> In addition, authors suggested restructuring the ICU work structure to remove barriers to performance of nurses.<sup>4</sup>

Our study revealed that respondents experienced higher performance obstacles related to tasks for spending time dealing with family needs and teaching patients or family members, orienting nurses followed by work environment whereas lower in organization. This finding is consistent with other studies in Saudi Arabia<sup>2</sup> and Egypt at Damanhur city,<sup>13</sup> where majority of critical care nurses reported obstacles related to tasks for orientation to new nurses and spending a significant amount of time teaching patients or their families. Further, authors pointed out that these activities with the ICU’s critical procedures add to the nurses’ workload and take a lot of time.<sup>2</sup> Similarly, other studies reported noisy work environment as most frequently encountered performance barrier by critical care nurses.<sup>1,9</sup>

In this study, respondents’ median percentage of

workload score was higher on physical demand (85%), effort (85%), and mental demand (80%) whereas lower on frustration (40%). Similarly, Ragab and colleagues reported the highest mean scores for efforts and physical dimension.<sup>9</sup> This indicated that critical care nurses require more efforts to accomplish their tasks, having high physical and mental workload, frustration as well as experiencing low performance satisfaction. Research evidence have shown that heavy workload is a severe problem, particularly in intensive care units, threatening patient safety and the standard of care for critically sick patients.<sup>6,14</sup>

Our study found a positive correlation between task and organizational related obstacles with effort, physical, mental, and temporal workload. This finding is consistent with the study of Wisconsin in which performance barriers (poor physical work environment, equipment-related issues, organizational issues such as disorganized supplies area, seeking for patient charts, and delays in receiving medications from pharmacy) were significantly correlated with workload.<sup>4</sup> Similarly, another study showed a positive relationship between performance obstacles and all six dimensions of workload.<sup>9</sup> This study adds the body of knowledge regarding performance obstacles and workload of the nurses working in critical care unit in Nepalese context. Despite of this, this study is limited to only one setting so findings may not be generalized to other settings.

## CONCLUSION

Nurses experience variety of obstacles and workload in critical care unit. Performance obstacles related to task and organization is positively correlated with effort, physical and mental workload of nurses. Therefore, hospital administration needs to plan and implement program to minimize performance obstacles that lower nurses' workload.

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## REFERENCES

- Gurses AP, Carayon P. Performance obstacles of intensive care nurses. *Nursing research*. 2007 May 1; 56(3):185-94. [PubMed] [DOI]
- Eldeeb G. Performance obstacles in ICU and their effects on patient's safety at selected Hospitals in Jazan Region, KSA. *IOSR Journal of Nursing and Health Science*. 2016; 5(6):26-36. [Full Text][DOI]
- 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. [Full Text] [DOI]
- Gurses AP, Carayon P, Wall M. Impact of performance obstacles on intensive care nurses' workload, perceived quality and safety of care, and quality of working life. *Health services research*. 2009 Apr; 44(2p1):422-43. [Full Text] [PubMed] [DOI]
- Ahmed WA, Soliman ES, Shazly MM. Staff nurses' performance obstacles and quality of work life at Benha University Hospital. *Nurs Health Sci*. 2018; 7:65-71. [Full Text] [DOI]
- Banda Z, Simbota M, Mula C. Nurses' perceptions on the effects of high nursing workload on patient care in an intensive care unit of a referral hospital in Malawi: a qualitative study. *BMC nursing*. 2022 Dec; 21(1):1-7. [Full Text] [PubMed] [DOI]
- Zakeri M, Barkhordari-Sharifabad M, Bakhshi M. Investigating The Performance Obstacles of Intensive Care Units from The Perspective of Nurses and Its Relationship with Quality of Work Life. *Journal of Nursing Education (JNE)*. 2021 May; 10(2).[Link]
- Tucker AL, Edmondson AC. Why hospitals don't learn from failures: Organizational and psychological dynamics that inhibit system change. *California management review*. 2003 Jan; 45(2):55-72. [Full Text][DOI]
- 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. [Full Text] [DOI]
- Gurses AP. Performance obstacles and facilitators, workload, quality of working life, and quality and safety of care among intensive care nurses. *The University of Wisconsin-Madison*; 2005. [Full Text]
- NASA N. Task load index (tlx) v. 1.0 manual. NASA, NASA-Ames Research Center Moffett Field. 1986. {Full Text}
- Aletras VH, Kallianidou K. Performance obstacles of nurses in intensive care units of Greek National Health System hospitals. *Nursing in Critical Care*. 2016 May; 21(3):157-66. [PubMed][DOI]
- Keshk LI, Qalawa SA, Aly AA. Performance obstacles experiences among critical care nurses in damanhur teaching hospital. *Life Science Journal*. 2012;9(2):1044-54. [Full Text]
- Almenyan AA, Albuduh A, Al-Abbas F. Effect of nursing workload in intensive care units. *Cureus*. 2021 Jan 13; 13(1). [Full Text] [PubMed] [DOI]