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Research article

Perceived Barriers among Intensive Care Unit (ICU) Nurses in the Delivery of Nursing Care to ICU Patients

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ABSTRACT

BACKGROUND: Nurses in the Intensive Care Units (ICUs) routinely provide care to patients and their families nearing the end of their lives. ICU nurses encounter numerous barriers while caring for ICU patients.

STUDY AIMS: This study aims to assess the barriers faced by the nurses working in intensive care units while performing their duties.

METHODOLOGY: A descriptive cross-sectional study was conducted among intensive care unit nurses at four hospitals. A total of 289 nurses were enrolled in the current investigation. An adapted and modified questionnaire was utilized to collect data. The questionnaire includes demographic information about nurses and questions about nursing care barriers. A five-point Likert scale was used for each aspect, with 1 signifying strong disagreement and 5 denoting strong agreement.

RESULTS: In this study, among 289 participants, most of the study participants 176 (60.9%) were in the age group 20–30 years. Most ICU nurses reported the family barrier as the major perceived barrier, with a mean score of 4.01 ± 0.50 . The other related barriers include task, environmental, technological, and organizational barriers.

CONCLUSION: The current study concluded that ICU nurses faced various perceived barriers while caring for ICU patients. The family barrier was the most prevalent perceived barrier among ICU nurses (mean score 4.01 ± 0.50). Most of the nurses agreed that spending time on explanation to family members (87.9%) was the most common family barrier. Nursing administrators and healthcare policymakers can use the current study findings to improve the healthcare system's performance.

Keywords: Nurses; Perceived Barriers; Intensive Care Units; Patients Care

1. INTRODUCTION

Critical Care Units (CCUs) provide specialized patient care, primarily focusing on curing or restoring their health through aggressive therapeutic approaches and advanced technological support. In the CCU, where patient deaths are caused mainly by the incredible complexity of medical conditions, caregivers often need to adjust their focus from a healthful approach to end-of-life care [1].

The efficiency of patient care during critical illness depends on the clinical expertise, tact, and judgment of the professional nurses that work in ICUs. Critical care nurses oversee the nursing care of chronically sick patients and assist patients whose survival is at risk by follow-up, monitoring, threat management, and other invasive therapies[2].

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Critical care nurses are the medical staff members who move about the most, coordinating care between doctors, specialists, patients, and families. Critical care nurses assist, supervise, and evaluate the work of the medical team while also attending to a variety of nursing needs and interventions, such as those for tools, materials, supplies, medical records, and other informational needs, as well as communication with support departments and neighboring units or other units [3].

Critical care and advanced supportive measures in these areas can help patients with multiple issues like major surgeries, post-surgery complications, accidents, infections, and acute inhaling problems [4]. A CCU is a highly technological and dynamic environment that demands close, ongoing care from a team of highly trained healthcare professionals, including nurses. In CCU, cardiac monitors, intravenous lines, nasogastric tubes, drains, urine catheters, ventilators, and other instruments are utilized. Although these enhance the probability of recovery, they can also spread the risk of infection [5].

Professional nurses obtain knowledge of the equipment and environment they work in after spending a significant amount of time in these CCUs. They find the best solutions against on-duty challenges and emergencies. The CCUs staff nurses usually serve long periods in these areas because there is a small number of professional nurses available with additional qualifications of specialty in critical care nursing [6].

Despite their training, nurses are under much pressure during their working hours to provide high-quality care. The ICU needs timely evaluation and proper functioning of tools. In an ICU, mechanical breathing machines, tracheostomy tubes, endotracheal tubes, monitors, and nebulizer machines are common. In these setups, patients also lodge with multiple insertion tubes like arterial lines, central venous lines, feeding tubes, and suction pumps [7].

Barriers are parts of every working system that affect performance and are directly linked to the immediate working environment [8]. The obstacles have a substantial impact on patient care in ICU. Every day, different and multiple procedures are performed for each ICU patient, reflecting the significant workload in these units. Hospitals face many challenges that can save nurses time and energy, such as a busy, hectic, and disorderly work environment, outdated equipment, unavailability of essential instruments, and ineffective morning rounds [9]. Environment barriers also include a lack of resources, poor team coordination, inadequate technological support, and needing more space in the organization to sit down and finish their paperwork [10].

Nurses are continuously present at the patient's bedside, allowing them to support and encourage the patient's family effectively. They serve as a central point of communication, connecting all parties involved in patient care, including family members and the healthcare team. This presence enables nurses to provide comprehensive and coordinated care, ensuring effective communication and collaboration among all stakeholders. Excessive and repeated visits by family members or overcrowding in the ICU can pose challenges to providing nursing care. These circumstances can create obstacles and hinder the ability of nurses to deliver optimal care to critically ill patients. Healthcare workers can become frustrated by frequently calling nurses for updates on patients' conditions, making too many phone calls, and taking a long time to explain things to family members. Mohammadi et al. observed that family members could also considerably increase the Nurse's workload [9].

In ICU, numerous perceived barriers can waste the energy and time of nurses. ICU nurses are perceived as barriers to ICU resources and healthcare provider availability. Barriers among ICU nurses include a disorganized workplace, worn-out equipment, wasting too much time explaining the patient's condition to the attendant, and ineffective morning rounds. Inadequate nurse-to-patient ratios, ineffective nurse-to-doctor interaction, and unclear prescription orders can all be barriers in nursing. Therefore, this study aims to identify the barriers to nursing performance in the ICUs as perceived by nurses and develop guidelines to enhance the quality of nursing care in these high-intensity settings.

2. METHODS

A descriptive cross-sectional study was conducted from January 2020 to August 2020 among nurses of ICUs who meet the inclusion criteria. There are three public sector hospitals in Lahore since these have significant teaching mandates in Lahore, Pakistan.

2.1 Sample Size

The sample size for nurses was calculated by applying the Kish Leslie formula as follows:

$$N = \frac{(1.96)^2 \times 0.75(1-0.75)}{(0.05)^2} = 289$$

A sample size of nurses: 289

2.2 Inclusion Criteria

Registered nurses involved in direct patient care have been in the ICU for at least one year. Both males and females of all ages.

2.3 Exclusion Criteria

Nurses have experience working abroad. Head nurses, clinical instructors, nurse managers, and nurses with a master's in nursing degree.

2.4 Data Collection Tool

An adopted and modified questionnaire was used to collect data. The questionnaire consisted of two parts. Part A includes nurses' demographic data, age, sex, education level, nursing job experience, and ICU job experience. Part B comprised 22 items about various nursing care barriers. A five-point Likert scale was used for each factor: one implies strongly disagree and five as strongly agree.

2.5 Procedure

Following approval from the top administration of the chosen hospitals, the selected participants were registered (based on inclusion and exclusion criteria) for research purposes. The researcher approached the chosen individuals. All selected participants signed informed written consent after explaining the goal, benefits, and other pertinent information about the study and registration procedure. A modified structured questionnaire was used to gather data.

Data was collected from hospitals during both the early and nighttime shifts. The fair and systematic random sample involves assigning a number to each community member and selecting the tenth member from that population. In such cases, we select the tenth person. Participants were guided in understanding and responding to the queries posed. Participants were asked to answer each question based on their opinions and experience.

The participants' anonymity was maintained. Participants were guaranteed confidentiality during data gathering, analysis, and interpretation. Throughout the research, ethical considerations were strictly followed.

2.6 Statistical Analysis

The data was analyzed using SPSS 23. The mean and standard deviation were calculated for the age and nursing care barriers score. Frequency and percentage were given for gender, hospital, educational status, and experience. One-way ANOVA and independent sample t-test were used to compare the mean barrier score of perceived barriers among ICU Nurses. A p-value ≤ 0.05 was taken as significant.

3. RESULTS

3.1 Demographic Data

In this study, 289 participants based on inclusion and exclusion criteria were selected from Jinnah Hospital, Sheikh Zaid Hospital, and Lahore General Hospital, Lahore. Most of the study participants, 176 (60.9%), were related to the age group 20 – 30 years. Of 289 participants, 115 (39.8%) had bachelor's degrees, while 174 (60.2%) had diplomas. Among all participants, 132 (45.7%) had 1–5, 109 (37.7%) had 6–10, 28 (9.7%) had 11–15, and only 20 (6.9%) had more than 15 years of experience in the ICUs. Figures 1, 2, and 3 show the study participants' demographic distribution.

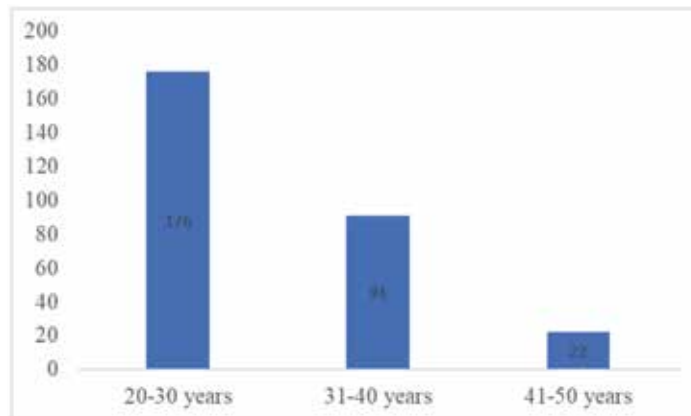


Figure 1. Study participants' distribution by age group.

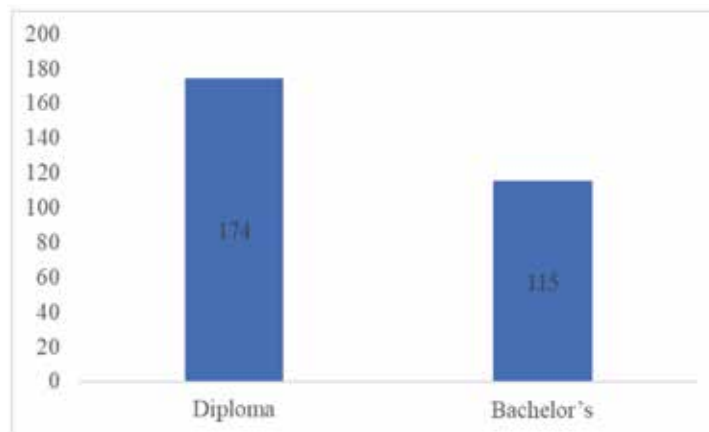


Figure 2. Education level of study participants

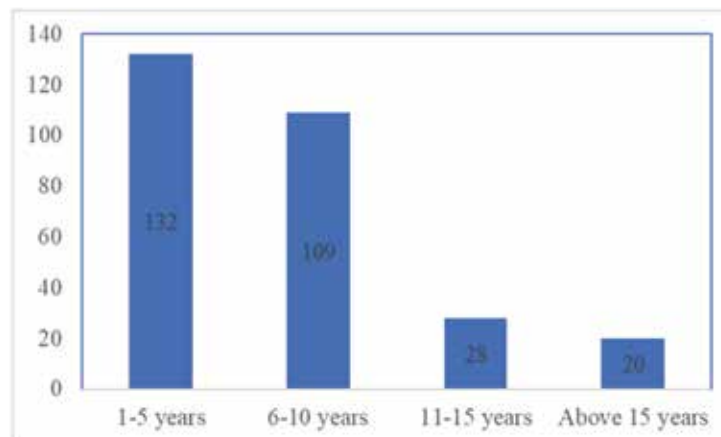


Figure 3: Experience of Intensive care unit nurses.

3.2 Perceived Barriers among ICU Nurses in nursing care delivery to ICU Patients

To assess various nursing care barriers, a 25-item structured questionnaire was used. A five-point Likert scale was used for each factor, with five indicating strongly agree and one indicating strongly disagree. A higher score indicates a higher barrier towards various nursing care. Responses of the study participant of each item are given in Table 1.

Table 1. List of nursing care barriers.

No.	Environment Barrier	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Unit visiting hours that are too flexible.	0 (0.0%)	17 (5.9%)	50 (17.3%)	153 (52.9%)	69 (23.9%)
2.	Insufficient space for paperwork	1 (0.3%)	77 (26.6%)	87 (30.1%)	80 (27.7%)	44 (15.2%)
3.	Satisfied with the help of colleagues.	0 (0.0%)	19 (6.6%)	98 (33.9%)	126 (43.6%)	46 (15.9%)
4.	Patients' rooms are not close to each other	0 (0.0%)	63 (21.8%)	56 (19.4%)	123 (42.6%)	47 (16.3%)
Organizational Barrier						
5.	Inadequate information from physicians	11 (3.8%)	66 (22.8%)	74 (25.6%)	96 (33.2%)	42 (14.5%)
6.	Inadequate information from physicians	5 (1.7%)	69 (23.9%)	85 (29.4%)	94 (32.5%)	36 (12.5%)
7.	The previous shift's nurse gave inadequate information during the shift change report	5 (1.7%)	70 (24.2%)	69 (23.9%)	106 (36.7%)	39 (13.5%)
8.	Delay in getting medications from the pharmacy	6 (2.1%)	52 (18.0%)	64 (22.1%)	117 (40.5%)	50 (17.3%)
9.	Delay in seeing new medical orders	10 (3.5%)	68 (23.5%)	57 (19.7%)	115 (39.8%)	39 (13.5%)
10.	Change of shift report taking too long	4 (1.4%)	52 (18.0%)	77 (26.6%)	108 (37.4%)	48 (16.6%)
Technological/Tools Barrier						
11.	Having to use equipment in poor condition	4 (1.4%)	67 (23.2%)	84 (29.1%)	98 (33.9%)	36 (12.5%)
12.	Shortage of equipment	12 (4.2%)	47 (16.3%)	60 (20.8%)	124 (42.9%)	46 (15.9%)
13.	Isolation rooms not well-stocked	5 (1.7%)	50 (17.3%)	33 (11.4%)	143 (49.5%)	58 (20.1%)
14.	Patient rooms are not well-stocked	6 (2.1%)	61 (21.1%)	65 (22.5%)	105 (36.3%)	52 (18.0%)
15.	Improper placement of equipment.	11 (3.8%)	46 (15.9%)	97 (33.6%)	109 (37.7%)	26 (9.0%)
16.	The supply area is not well-stocked	10 (3.5%)	68 (23.5%)	61 (21.1%)	112 (38.8%)	38 (13.1%)
Task Barrier						
17.	Accompanying a patient during intra-hospital transport	3 (1.0%)	54 (18.7%)	90 (31.1%)	99 (34.3%)	43 (14.9%)
18.	Responsible for orienting a new nurse.	1 (0.3%)	32 (11.1%)	78 (27.0%)	129 (44.6%)	49 (17.0%)
19.	Unanticipated and unscheduled admissions and discharge	1 (0.3%)	24 (8.3%)	39 (13.5%)	135 (46.7%)	90 (31.1%)

Family Barrier						
20.	Receiving many phone calls from family members	7 (2.4%)	56 (19.4%)	63 (21.8%)	115 (39.8%)	48 (16.6%)
21.	Distractions from family members due to excessive visiting	0 (0.0%)	10 (3.5%)	31 (10.7%)	162 (56.1%)	86 (29.8%)
22.	Family not accepting what the physician is telling them about the patient's poor prognosis	0 (0.0%)	6 (2.1%)	44 (15.2%)	163 (56.4%)	76 (26.3%)
23.	The nurse has to deal with angry/ distraught family members while still caring for the patient.	0 (0.0%)	13 (4.5%)	43 (14.9%)	151 (52.2%)	82 (28.4%)
24.	Spending a considerable amount of time explaining to family members	0 (0.0%)	7 (2.4%)	28 (9.7%)	182 (63.0%)	72 (24.9%)
25.	Family poor perception regarding different lifesaving measures. Like E.T tube & chest compression & CV line	0 (0.0%)	4 (1.4%)	31 (10.7%)	150 (51.9%)	104 (36.0%)

The mean score of the environmental barrier was 3.62 ± 0.64 , ranging from 2.0 to 5.0. The mean score of the organizational barrier was 3.40 ± 0.73 , ranging from 1.2 to 5.0. The mean score of the technological/tools barrier was 3.44 ± 0.76 , ranging from 1.0 to 5.0. The mean score of the task barrier was 3.70 ± 0.68 , ranging from 2.3 to 5.0. The mean score of the family barrier was 4.01 ± 0.50 , ranging from 2.5 to 5.0, as shown in Fig. 4.

The mean score for family barriers was higher, indicating that the family barrier was the most prevalent in nursing care, followed by task barrier, environmental barrier, technological/tool barrier, and organizational barrier.

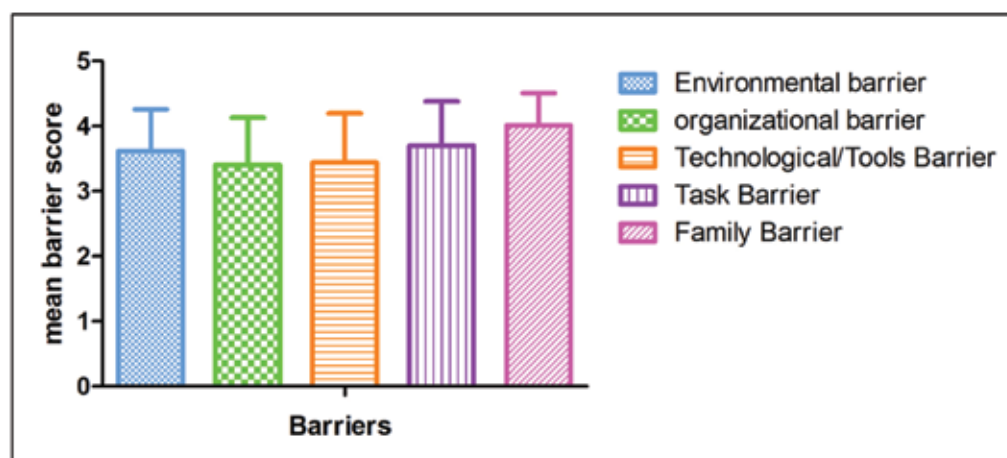


Figure 4. Mean Score of nursing care barriers in ICU.

A one-way ANOVA test was used to compare the mean barrier score among nurses of different hospitals. The results revealed a significant difference in the mean score of environmental, organizational, task, and family barriers. The mean barrier score was higher in Sheikh Zaid Hospital and Lahore General Hospital than in Jinnah Hospital. However, no significant difference was observed in the mean Technological/ Tools Barrier score among nurses of different hospitals, as shown in Table 2.

Table 2. The distribution of participants according to hospitals.

Institute	Environmental Barrier	Organizational Barrier	Technological/ Tools Barrier	Task Barrier	Family Barrier
Jinnah Hospital	3.21 ± 0.52	3.17 ± 0.60	3.31 ± 0.67	3.31 ± 0.57	3.66 ± 0.47
Sheikh Zaid Hospital	3.88 ± 0.55	3.51 ± 0.69	3.53 ± 0.76	4.06 ± 0.54	4.22 ± 0.38
Lahore General Hospital	3.77 ± 0.65	3.51 ± 0.83	3.49 ± 0.83	3.74 ± 0.69	4.15 ± 0.47
p-value	<0.001*	0.001*	0.100	<0.001*	<0.001*

*Significant

A one-way ANOVA test was used to compare the mean barrier score among nurses with different years of experience. The results revealed a significant difference in the task barrier mean score. The mean barrier score was higher in nurses whose experience was less than five years and in those nurses who had experienced more than 15 years. Conversely, no significant difference was detected in mean environmental, organizational, technological/ tools, and family barriers scores among nurses of different years of experience, as shown in Table 3.

Table 3. The distribution of participants according to their experience in the ICU.

Experience	Environmental Barrier	Organizational Barrier	Technological/ Tools Barrier	Task Barrier	Family Barrier
1-5 years	3.65 ± 0.55	3.38 ± 0.71	3.46 ± 0.74	3.83 ± 0.60	4.05 ± 0.45
6-10 years	3.62 ± 0.72	3.44 ± 0.77	3.47 ± 0.78	3.55 ± 0.73	3.97 ± 0.59
11-15 years	3.54 ± 0.66	3.24 ± 0.74	3.42 ± 0.79	3.55 ± 0.69	4.02 ± 0.42
Above 15years	3.56 ± 0.75	3.49 ± 0.59	3.23 ± 0.73	3.85 ± 0.60	3.93 ± 0.49
p-value	0.861	0.558	0.595	0.005*	0.545

4. DISCUSSION

In this study, 289 participants were included from three hospitals with different age groups. Most were related to the age group 20-30 years; similarly, a study reported the same demographic information [11]. Most of the nurses in the current study have no highest degree, and most of them were experienced ≤ 05 years. In line with the present study, Mirshekari et al. from southeast Iran also reported similar results [12].

Among environmental barriers, most nurses either agree or strongly have insufficient space for paperwork and half of them agree that the visiting hours are too flexible. The performance of nurses is negatively impacted by flexible visiting hours. Additionally, it is advised that a family member select friendly relationships between family members and nursing staff so that nurses are not required to respond repeatedly to the same questions. A previous study by Beckstrand et al. also reported that visiting hours were too flexible (mean=2.40) [13]. Junior et al. concluded that the flexible visiting hours for ICU professionals in the ICU unit might be linked with increased exhaustion [14]. However, more than 50% of nurses were satisfied with their colleague's help. Similarly, a study in Iran presented that nurses are satisfied with their colleague help and collaboration [14].

In our study, the ICU nurses faced organizational barriers. Several studies confirmed organizational barriers, such as management behavior influencing reporting, the reporting system, and organizational, unit, and hospital cultures that are recognized as blaming [15].

In our study, the most common organizational barrier was insufficient information from physicians (47.7%) and previous shift nurses (50.2%). According to one study, limited information from physicians and previous shift nurses was another major hurdle. However, giving care to ICU patients is a collaborative effort that requires coordination and communication [16]. This is demonstrated by the fact that during shift change, both shift nurses made similar observations about the poor quality of records used, particularly in the case of the shift change report.

Inadequate information from doctors (33.2%) and a wait time before receiving new medical orders were cited by ICU nurses as performance barriers. These findings were in line with those reported by [16], who noted that all of the intensive care units included in the findings were at least somewhat using patient charts based on paper. Nurses frequently read instructions that doctors write down for patients by looking at the patient's chart. Receiving the patient chart on time can be difficult for nurses because many carers in an ICU occasionally need it to provide proper care.

Additionally, 57% of the nurses stated a delay in medication from the pharmacy and an interruption in getting new medical orders. A study in the United States reported such events faced by ICU nurses, including medication delays (42%). This delay in medication delivery is a significant consequence that pretends a major risk in critically ill patients [17]. Nurse medication management guidelines state that reporting medication errors or near-misses will help streamline the procedure and raise the standard of patient care [18].

Among technological and tools barriers, most nurses stated that the shortage of equipment (58%) and not well-stocked isolation rooms (59%) is a problem for nurses while caring for ICU patients. The most common barrier in the technology sector was having to use outdated equipment. Using apparatus that needed to be in better form (47%) as a barrier and improper equipment placement (48%). More technology and equipment are available in ICUs than in any other hospital ward. Infusion pumps, monitors, ventilators, and dialysis increase the difficulty of medical care in the ICU and significantly influence the quality of care delivered there. Technology includes both the tools themselves and the know-how to use them. This equipment must be evaluated regularly and replaced when it becomes obsolete or faulty. Educational hospitals have a limited budget for significant investments that could make providing care more difficult. According to prior research findings, ICU nurses face technological barriers such as inadequately stocked isolation rooms and equipment shortages [19]. Similarly, 58% of nurses agreed that patient areas must be better stocked. Other studies also identified the same obstacles reported by ICU nurses while caring for patients, including shortage of equipment, not well-stocked isolation, and patients' rooms [19, 20].

According to the study, 77.7% of nurses concur that there are daily unexpected and unscheduled admissions and discharges in the ICU. The ICU patients who must be transferred to another hospital department for tests and procedures and who are in danger are considered to require intra-hospital transport, according to 49.2% of ICU nurses. Additionally, associating a patient on intra-hospital conveyance substantially adds to the assignment of critical care unit nurses and takes them away from tending to other ICU patients. Critical care nurses reported 61.6% of performance obstacles related to the obligation to provide new nurse orientation.

In the present study, family barriers are the other primary concern nurses demonstrate while caring for ICU patients. Most nurses stated that they spend much time explaining to family members (87.9%), and excessive visiting by family members makes distractions (85.9%) for nurses. Previous research demonstrated the family-related barrier faced by ICU nurses and reported that nurses spend much time communicating with patients' families about their prognosis and act as a translator for family patients [21]. A study from Belgium reported that excessive visiting by family members interfered with the nursing caring process by providing information to the family. However, instead of excessive visiting, the family members must support the nurses to ensure the patient's care in ICU [21]. The barrier started by nurses was lack of time, and they felt it was not their responsibility to communicate with patients' families. Such barriers for ICU nurses lead to distancing from the patient's family [22, 23].

In this study, another issue faced by nurses was either agree or strongly agree, including too many calls received from members of the family (56.6%) and low-income family perception (87.9%). Our study is in line with Gurses et al., who demonstrated that too many calls are reported obstacles by ICU nurses. Regarding this barrier, an effective system or policy has yet to be implemented to improve nurse-family relations [19]. Family members have a poor perception of life-saving measures, like chest compression may break patients' ribs, and an ET tube may cause pain and will not allow the patient to talk [24]. It is believed that too many calls from family members correlate with the increased

workload on ICU nurses [9]. Perceived barriers among ICU nurses originated from three primary sources: patients and their families, nurses, and government and hospital policies [25].

5. CONCLUSIONS

The current study concluded that ICU nurses faced various types of perceived barriers while caring for ICU patients. The family barrier was the most prevalent perceived barrier among ICU nurses (mean score 4.01 ± 0.50). Most of the nurses agreed that spending time on explanation to family members (87.9%) was the most common family barrier. Other barriers faced by ICU nurses were related to different types of tasks and environmental, technological, and organizational barriers. Nursing administrators and healthcare policymakers can use the current study findings to improve the healthcare system's performance.

Conflict of interest: All the authors have no known conflicts of interest.

Ethical Approval: Ethical review committee of the University of Health Sciences Lahore Pakistan Approved this study.

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