

## ORIGINAL ARTICLE

## NURSING STUDENTS' AWARENESS ABOUT EDUCATIONAL ENVIRONMENT IN SURGICAL THEATRE OF A MILITARY HOSPITAL

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**Background:** The surgical theatre educational environment during nursing school may influence student's comfort and satisfaction which in turn affect the patient safety. Objectives of this study were to assess the awareness of nursing students on the learning environment in surgical theatre of a military hospital and to find any differences with respect to their age and academic years. **Methods:** This cross-sectional study was conducted at CMH Lahore Institute of Nursing from December 2018 to March 2019. Undergraduate nursing students were included in the study after taking their written consent. A self-administered inventory called 'Mini-Surgical Theatre Educational Environment Measure' ('Mini-STEEM'), on 5-point Likert scale consisting of 13 items was distributed to all participants. Data was analysed using SPSS-20. **Results:** Questionnaire was filled by 124 undergraduate nursing students, with 100% response rate. Two items regarding trainer scored highest mean (4.2) while the lowest scored item (3.0) was about the pressure of anaesthetists on trainer. The total score of the questionnaire was 48.35 which was more than the midpoint score (39). The domains regarding atmosphere in surgical theatre and operating experience scored 76.7% and 75.8% respectively. The domain about discrimination scored lowest percentage of 69% among three subscales. Final-year nursing students scored highest mean score followed by second year ( $p < 0.001$ ). **Conclusion:** The nursing students were comfortable and satisfied with the educational environment of surgical theatre at CMH Lahore Institute of Nursing for their surgical education. However, nursing students were concerned regarding anaesthetists pressurizing trainers to operate themselves instead of letting nursing students do it to reduce anaesthetic time.

**Keywords:** awareness, educational environment, nursing students, military, surgical theatre

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## INTRODUCTION

Educational environment (EE) has been recognized as one of the most imperative elements in medical education for identifying the accomplishments of an educational program and effective learning.<sup>1</sup> Nursing students' learning is influenced remarkably in an environment that promotes learning by positive attitude of the educators and the consideration of nursing students as team members. It assists instructors and mentors to develop the nursing students professionally and mentally for the challenges of their careers. Awareness regarding various vital components of the learning environment plays an important role in managing desired outcomes of curriculum and embracing needed modifications and improvements.<sup>2</sup>

Numerous studies and many validated instruments were constructed targeting the improvement in teaching and learning. These were Operating Room EE Measure (OREEM),<sup>3</sup> Postgraduate Hospital EE Measure (PHEEM), Dundee Ready Education Environment Measure (DREEM), Anaesthetic Theatre Education Environment Measure (ATEEM), and Surgical Theatre EE Measure (STEEM).

Surgical theatre (ST) is a stressful, chaotic and unique educational setting for nursing students because of high risk complexities, role of human factors on patient safety and distractions.<sup>4</sup> Patient safety and patient outcomes are the basic priorities of healthcare industry and nurses are the forefront health providers and one of the important cohorts of health professionals (HPs) spending much of their duty hours with patients than other HPs.<sup>5</sup> Involvement of all health workforce is crucial in ST because nursing students can learn through mentorship, observation and hands-on training.<sup>6</sup>

Military nursing personnel deal with military patients who have suffered from war encounters, and have to face many challenges including stress, long working hours and excessive work load. These factors lead to emotional exhaustion, inefficient attitude and depersonalization among nurses.<sup>7</sup> Systematic review done by Snowdon *et al*, has revealed that the attitudes of the trainers and effective supervision of HPs are explicitly associated with better health outcomes.<sup>3</sup>

The rationale for this study was to identify the strengths and weaknesses of ST in a military setup from the nursing students' perspective. The findings would enlighten instructors regarding their teaching and

optimize the learning experience of nursing students. Several studies have been conducted around the globe regarding this topic. However, there is paucity of studies in Pakistan about nursing students' awareness of the educational environment in ST of a military setup. The objective of the present study was to analyze the awareness of nursing students on the learning environment in ST of the military setup and to find the differences with respect to their age and academic years.

## METHODOLOGY

This cross-sectional study was conducted at CMH Institute of Nursing (CMH-ION) Lahore associated with CMH Lahore Medical College & Institute of Dentistry (CMHLMC & IOD), Lahore. CMH is a teaching and tertiary care hospital managed by Pakistan military. It delivers medical facilities to military staff, their families, and civilian population. After obtaining approval from the developer of questionnaire Kevin Cassar<sup>8</sup>, and institutional review board of CMHLMC & IOD, the inventory 'Mini STEEM'<sup>9,10</sup> which is a reliable (0.86) pretested and validated questionnaire STEEM Census sampling was used, 'Surgical Theatre Educational Environment Measure' (STEEM) was circulated to 124 nursing students at CMH-ION. The inventory 'mini STEEM' has 3 domains namely: Good surgical operating experience, (including items 4, 5, 6, 7 and 12) Discrimination against me (consisting of items 9, 10, 11) and Friendly atmosphere in theatre (comprising items 1, 2, 3, 13). The study was conducted from December 2018 to March 2019. All 124 second, third and fourth year nursing students of CMH-ION who had started training in hospitals were included. First year nursing students were excluded because they were not exposed to clinical training. Written consent was obtained and anonymity and voluntary nature of the study was ensured.

Five-point Likert scale was used to calculate responses, 5= strongly agree 4= Agree 3= Unsure 2= Disagree 1= Strongly disagree. However, 5 (8, 9, 10, 11, 12) out of 13 items were reverse coded items with '1' being strongly agree and '5' being strongly disagree. The scoring of each item was considered as a 'positive' response if the response was 'strongly agree' or 'agree' and negative if the response was 'strongly disagree' or 'disagree.' The scoring of each domain was calculated by multiplying the number of items in each domain by 5. The highest possible score of the questionnaire was 65 and minimum score was 13. Total score more than 39 out of 65 reported satisfactory learning environment while a score below 39 reported not satisfactory environment. SPSS-20 was used to analyse the data. Continuous variables were analysed by calculating mean, minimum, maximum scores, and standard deviation. Frequency and percentages were computed for categorical variables. ANOVA was used to find the

differences of awareness among three groups of nursing students with the age and year of academic learning, and  $p \leq 0.05$  was considered significant.

## RESULTS

All 124 participants filled 'mini-STEEM' inventory producing a 100% response rate. The reliability of the questionnaire in this study was (0.7). Demographic information regarding students' age and year in nursing college is shown in Table-1.

Two statements (Q1 and Q4) about the trainer gained maximum points (4.2) reporting that participants were not facing any problems because of their trainers. The statement regarding 'anaesthetists put pressure on my trainer' (Q9) scored the minimum points and showed neutral response (3.0). The mean score of all 13 statements are mentioned in Table-2.

Forty-eight (48.35) out of 65 score indicated satisfactory environment of ST. The total percentage of the questionnaire was 74%. The domain regarding atmosphere in theatre gained 76.7%, followed by domain regarding operating experience attaining 75.8% (Figure-1).

There were significant differences found in awareness of nursing students with respect to their academic years (Table-3). Analysis of variance showed that 4<sup>th</sup> year nursing students scored the highest mean score (51.4) and the 3<sup>rd</sup> year nursing students had the lowest mean score (44.7). There were no significant differences in awareness of nursing students with respect to their age.

**Table-1: Demographic Characteristics of undergraduate nursing students (n= 124)**

Variables	Result
Age (Years) (Mean±SD)	21.62±0.86
Year of academic learning of nursing students	N (%)
2 <sup>nd</sup> year	49 (39.51)
3 <sup>rd</sup> Year	49 (39.51)
Final Year	26 (20.98)

**Table-2: Awareness of nursing students regarding surgical theatre (Mean±SD)**

No. Items	Score
1. My trainer is enthusiastic about teaching	4.23±0.64
2. The theatre staff are friendly	3.92±1.00
3. There are enough theatre sessions per week for me to gain the appropriate experience	3.31±1.28
4. Before the operation my trainer discusses the surgical technique planned	4.23±0.80
5. The elective operating list has the right case mix to suit my training	3.57±0.89
6. The variety of emergency cases gives me the appropriate exposure	3.82±1.03
7. I get enough opportunity to assist	3.55±1.33
8. On this unit the type of operations performed are too complex for my level	3.26±1.10
9. The anaesthetists put pressure on my trainer to operate himself to reduce anaesthetic time	3.04±1.16
10. I feel discriminated against in theatre because of my sex	3.45±1.10
11. I feel discriminated against in theatre because of my race	4.09±0.99
12. I am too busy doing other work to go to theatre	4.00±1.07
13. The atmosphere in theatre is pleasant	3.89±0.89
Total score of all items	48.35±5.79

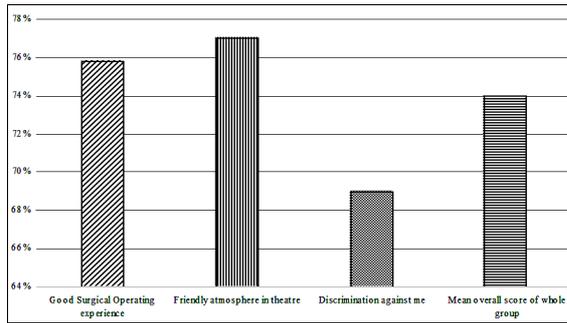


Figure-1: Mini-STEEM overall score and score in all 3 domains

Table-3: Mean scores (Mini-STEEM) among undergraduate nursing students

No. Items	Study Year			p*
	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	
1. My trainer is enthusiastic about teaching	4.47	4.16	3.88	<0.001
2. The theatre staff are friendly	4.08	3.88	3.69	0.260
3. There are enough theatre sessions per week for me to gain the appropriate experience	3.45	2.69	4.19	<0.001
4. Before the operation my trainer discusses the surgical technique planned	4.45	3.81	4.62	<0.001
5. The elective operating list has the right case mix to suit my training	3.69	3.34	3.77	0.070
6. The variety of emergency cases gives me the appropriate exposure	4.41	3.16	3.96	<0.001
7. I get enough opportunity to assist	4.06	3.00	3.62	<0.001
8. On this unit the type of operations performed are too complex for my level	2.49	3.69	3.88	<0.001
9. The anaesthetists put pressure on my trainer to operate himself to reduce anaesthetic time	3.55	2.57	2.96	<0.001
10. I feel discriminated against in theatre because of my sex	3.86	3.04	3.46	0.001
11. I feel discriminated against in theatre because of my race	3.98	3.92	4.61	0.008
12. I am too busy doing other work to go to theatre	3.90	3.76	4.65	0.001
13. The atmosphere in theatre is pleasant	3.98	3.67	4.12	0.077
Score of all items	50.37	44.71	51.42	<0.001

\*Using ANOVA

**DISCUSSION**

The surgical theatre is an alien, hostile, overwhelming and uninviting environment for novice nursing students. In this educational setting, learning takes place due to communication between all team members where trainers and trainees are the most important members.<sup>11,12</sup> The environment of this unique educational setting is directly linked with patient safety.<sup>13</sup> Positive EE of ST encourages nursing students to learn in an ideal environment and become good health professionals. The EE of ST in CMH-ION reported a satisfactory environment for nursing students by scoring 48.35 out of a total score of 65. This finding is in accordance with the study done by Nagraj *et al*<sup>9</sup> in the UK where the score was 45 out of 65. This finding is different from the overall score reported in a Pakistani study conducted by Kamran *et al*<sup>10</sup> who used the same questionnaire and their score

was 37.66 out of 65 showing dissatisfaction towards surgical trainers.

Nursing students in the current study were not satisfied regarding their hands-on training as it was reflected in the scoring of the item ‘The anaesthetists put pressure on my trainer to operate himself to reduce anaesthetic time’. This finding is supported by the work of O’Neill in New Jersey which showed that undergraduate medical nursing students wanted more hands-on operating experience and showed anxiety towards the learning in ST.<sup>14</sup> Similarly, a study by Papastarou *et al*<sup>15</sup>, and another study by Sharif and Masoumi<sup>16</sup>, highlighted the problem of anxiety among nursing students and noticeable deficiency in practice learning due to a non-supportive environment and fear of making errors in practice.

O’Driscoll *et al*<sup>17</sup> reported that although most trainers and mentors know their role towards nursing students, there are various obstacles inhibiting them from providing the needed support including organizational constraints and excessive workload. Such barriers can lead to trainers having to prioritize patients over nursing students learning. The ST can give positive experiential learning experiences to nursing students if the staff behaviour of ST is encouraging towards nursing students otherwise the negative attitude of staff can lead to anxiety-provoking among nursing students.<sup>15</sup>

Our results showed difference in awareness when different years of nursing education were compared. The 4<sup>th</sup> year nursing students had more interaction with patients which might have caused for higher scores as opposed to 3<sup>rd</sup> year nursing students. We did not find any differences in awareness regarding EE of ST based on age.

**IMPLICATIONS**

It is very important to plan briefing sessions with ST staff to explain all health providers about the structure of the medical program, the role of ST in medical education and expected students’ learning outcomes. Social interaction within ST affects how EE of ST is perceived. During hands-on learning, nursing students acknowledge trust, mutual respect, encouragement, and positive attitude of all team members which can minimize their anxiety and produce positive outcomes in practice. There should be a robust partnership with clear outcomes among all stakeholders so the problems within the surgical theatre can be addressed.

**STRENGTHS AND LIMITATIONS**

A validated and a reliable tool ‘Mini-STEEM’ was used. But the study was conducted in only one nursing college of Pakistan limiting the generalization of our findings. There is need to replicate the present study in other nursing colleges for the generalization of results.

## CONCLUSION

The nursing students revealed a clear positive awareness regarding EE of the ST in a military setup. However, the results highlighted the stress from anaesthetists on trainers to perform procedures themselves instead of nursing students to save time. The study encourages pilot projects with the ultimate goal of establishing an ideal learning environment in surgical theatres.

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