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ORIGINAL ARTICLE

Exploring the undergraduate medical students' satisfaction with the urinary catheterization workshop and the factors affecting it; A Cross-sectional Survey.

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ABSTRACT… Objective: To assess the satisfaction level of final year medical students with urinary catheterization workshop and the factors affecting it. **Study Design:** Cross-sectional study. **Setting:** Wah Medical College, Wah Cantonment. **Period:** October 15th, 2023 to January 15th, 2024. **Methods:** Satisfaction level and factors for its improvement were assessed by using a questionnaire after conducting a mandatory workshop on the skill of urinary catheterization. All the 90 final-year MBBS students present on the day of the workshop were included in the study using purposive sampling technique. The data was analyzed by using SPSS version 25. Fisher's exact test was applied to assess the association of gender with satisfaction level of students considering a p-value lesser than 0.05 as significant. For the open-ended questions, quantitative content analysis was performed. **Results:** The mean age of the students was 23.6+1.1 years. 82.2% of the participants had a very high satisfaction level with the workshop. Difference was observed when the satisfaction level of the students was assessed across gender (p-value=0.02). 45.6% of the students rated the workshop as good in all domains. The identified factors that can improve satisfaction with the workshop include the provision of refreshments, making smaller batches for teaching, providing feedback after skill performance and giving more time for practice. **Conclusion:** The majority of the students were highly satisfied with the workshop. Around half of the participants regarded the workshop as good in all domains but the students identified some factors for the improvement of satisfaction level with the workshop.

Key words: Medical Students, Satisfaction, Urinary Catheterization, Urinary Retention, Workshop.

INTRODUCTION

Urethral catheterization (UC) is a bedside procedure that is performed quite frequently among patients presenting to hospitals.[1] Around 12-16% of the patients admitted to different specialty wards need catheterization at any stage of their stay.[2] A multicenter study conducted among different hospitals of the National Health Service (NHS) among nine million patients for a period of four years established that in the age group of 18-70 years, UC was performed in 14% of the presenting patients.[3]

The most common indications for UC include acute urinary retention, urine output monitoring and hematuria.[2] Errors in the performance of bedside procedures often result in trauma. According to an Irish study, the incidence of urethral trauma post-catheterization has been reported to be 6.7 per 1000 catheters inserted.[4] In Pakistan, a study exploring the causes of UC-associated trauma has reported inappropriate inflation of catheter balloon in urethra instead of the bladder caused trauma in 110(76%) patients, accidental pulling out of inflated catheter balloon without deflation caused trauma in 10 (7%) patients while or multiple failed catheterization attempts resulted in injuries in 25(17%) patients.[5] This clearly shows that it is very important that the healthcare providers should be well versed with the appropriate technique of urinary catheterization. Post-catheterization complications include frank bleeding from the urethra, urethritis or even death.[6,7] These complications often lead to increased duration of hospital stay, hence causing a financial burden on the patients as well

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as the healthcare system of the country, but no steps are seen to be taken to reduce the burden associated with UC-related injuries.[4]

The previous literature shows that medical graduates lack basic bedside skills like UC due to a lack of practical training. It was also found that medical graduates, particularly in the early stages of their internship, are responsible for a far greater proportion of urinary catheterization-related morbidity.[8] It has been well established that training programs conducted in the past have resulted in confidence elevation and reduction in the incidence of different iatrogenic injuries caused by young medical graduates globally. Such an educational intervention has also proven to improve the skills related to urinary catheter insertion among the healthcare workforce.[9]

During the literature search, only a few studies were found that were related to educational interventions related to urinary catheter insertion. A positive effect of training sessions on knowledge and confidence related to UC among third-year medical students of the University of Chicago Medical Center, USA, was reported in a study.[10] Another study was found to be conducted in Lebanon in which the satisfaction of new medical interns related to UC workshops was assessed. Provided the use of technologically advanced methods of teaching, 92% of the students were satisfied with the training.[1]

This study aimed to assess the satisfaction level of final-year medical students with urinary catheterization workshop and the factors affecting it as no such evidence was found in the national context.

METHODS

Before initiating the research study, ethical clearance was granted to it by the Ethical Review Committee of the hospital via letter no. POFH/ERC/99053/09. For a duration of three months, we carried out this cross-sectional study among the final year medical students at Wah Medical College, Wah Cantt, from October 15th, 2023 to January 15th, 2024. Sample selection was made by inclusion criteria by using purposive sampling technique i.e. all the medical students studying in final year of the MBBS degree program in the college, as the workshop was mandatory to attend. Students only from the final year were included because they graduate to become interns and it has been found that the new interns are responsible for maximum iatrogenic catheterization-related urethral injuries.[8]

The study was conducted following the principles of "Declaration of Helsinki". A one-day workshop on the skill of urinary catheterization was conducted on November 6th, 2023. The duration of the workshop was three hours and it was conducted in the Skills Lab of Wah Medical College. Written informed consent was taken from all the 90 students who were present on the day of the workshop and were divided into four smaller groups. The instructional material was split into the PowerPoint presentation, videos and low-fidelity simulation. At first, they were shown a PowerPoint presentation, then 2 videos were shown, and then they were demonstrated the technique of urinary catheter placement by a Surgical Senior Registrar using Peyton's teaching approach on a mannequin. The students then performed the procedure and were observed by the Surgical Residents. They also answered any queries that the students had. At the end of the workshop, the satisfaction level of the students was assessed by using a questionnaire.

The questionnaire is a standard workshop satisfaction questionnaire constructed by the Medical Education Department of Wah Medical College, which has been face-validated by experts from different surgical domains. It consisted of two portions. The first portion consisted of questions related to the socio-demographic profile of the students, mainly age and gender. The second portion consisted of a satisfaction Likert scale and two open-ended questions. The scale contained seven questions with options ranging from strongly agree to strongly disagree with a maximum achievable score of 35. The two open-ended questions were about the overall impression of students about the workshop and any suggestions to improve the conduction of the workshop.

The data was analyzed by using SPSS version 25. Description analysis was performed. The age and satisfaction scores were expressed as mean and standard deviation while frequencies and percentages were calculated for categorical variables like gender and satisfaction level. Fisher's exact test was applied to assess the association of gender with satisfaction level of student considering a p-value lesser than 0.05 as significant. For the open-ended questions, quantitative content analysis was performed.

RESULTS

Our sample consisted of 90 final-year MBBS students with a mean age of 23.6+1.1 years. The majority of the participants were female (63.3%). The mean satisfaction score of students was 32.4+4.4. The majority of the students had a very high satisfaction level with the workshop (82.2%). as shown in Figure-1.

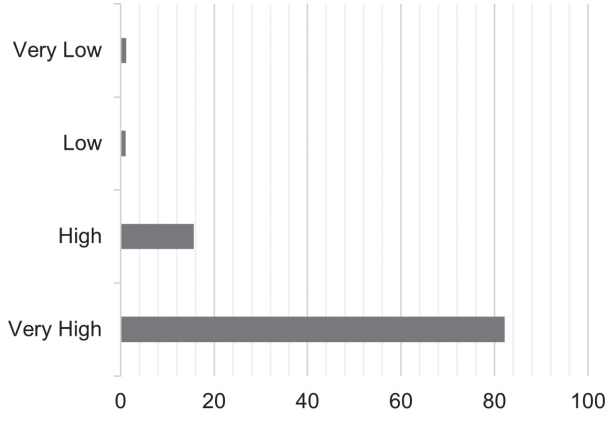

Figure-1. Satisfaction level of the medical students

Statistically significant difference was observed when satisfaction level of the students was assessed across gender as shown in Table-I.

Satisfaction Level	Gender		P-Value*
	Male	Female	
Very high	32	42	0.02
High	1	13	
Low	0	1	
Very Low	0	1	

Table-I. Association of satisfaction level and gender of medical students (N=90)
*** Fisher's exact test**

The most frequent response for overall impression of workshop among the medical students was that it was good in all domains, followed by the workshop being well organized while 13.3% of the participants chose not to respond to the question.

Sr. No.	Response Categories	n (%)
1	Good in all domains	41(45.6)
2	Well organized	16 (17.8)
3	No response	12 (13.3)
4	Informative	08 (8.9)
5	Well-conducted by the facilitator	05 (5.6)
6	Conducive environment	04 (4.4)
7	Great hands-on experience	04 (4.4)
	Total	90

Table-II. Response categories for students' overall impression of workshop (N=90)

The majority of the students responded that there is no further need for improvement in the way the workshop was conducted, followed by the opinion that they should also be served refreshments after the workshop.

Sr. No.	Response Categories	n (%)
1	No need for further improvement	56 (62.3)
2	Refreshments should be served	10 (11.1)
3	Make smaller batches for teaching	9 (10)
4	Give more time for practice	6 (6.7)
5	Improve sitting arrangement	4 (4.4)
6	Provide feedback after performance	3 (3.3)
7	No response	2 (2.2)
	Total	90

Table-III. Medical students' suggestions for improvement of the workshop (N=90)

DISCUSSION

This study was carried out with the aim of assessing the satisfaction levels of medical students with a urinary catheterization workshop and the factors affecting it. The findings of our study will provide valuable insights into practical skill training and will contribute to the improvement of clinical curriculum design and implementation.

Our study showed 82.2% of the final-year MBBS students were highly satisfied with the urinary catheterization workshop. A similar study conducted in Lebanon among new medical interns reported that 92% of the participants

were highly satisfied with their training. It also reported an increase in the confidence level of the participants at the end of the workshop.[1]

The students in our study identified some factors which could improve their satisfaction with the workshop. Although they were divided into small batches of around 23 students each, 10% of the students suggested that making further smaller groups would be beneficial for their learning. This was supported by another study conducted in Spain in which making smaller groups of 10 to 13 students resulted in better self-efficacy in urinary catheterization among the students which resulted in improved satisfaction.[11]

In our study, 6.7% of the students suggested they should be given more time to practice their skills on the models. A study conducted among Ivy League medical schools in the United States also supported the fact that more time spent practising practical skills increases competence and related satisfaction among medical students.[12] Our study also reported that 3.3% of the students wanted that more models should be provided for the training purpose. An American study has also supported the fact that the availability of resources, including models and equipment, results in positive feedback from participants.[13]

Surprisingly, 11.1% of our participants suggested that they would feel more motivated to learn if refreshments were provided at the end of the workshop. A United Kingdom-based study also supported the fact that arranging refreshments enhance the learning experience of the participants in a workshop.[14]

In our study, 3.3% of the participants also recognized the importance of feedback in procedural training and suggested that providing timely feedback would have increased their level of satisfaction with the workshop. The importance of feedback in skill training has also been recognized by an Australian study, which reported that it leads to the long-lasting retention of skills.[15] A German study has also reported that the provision of feedback from the instructor leads to improved motivation among students for learning skills in a workshop and it also lets the students gauge their progress throughout the workshop.[16]

Apart from the suggestions given by the students, some other key areas for improvement in urinary catheterization training have been identified in the literature. This includes the standardization of training across different curriculums, addressing the lack of exposure to various catheter types and their indications.[9] A German study also reported the positive impact of faculty expertise on student satisfaction with clinical skills training as the students showed better performance in bladder catheterization after being taught by an expert.[17] A study conducted in Spain also reported to a positive effect of using flipped classroom as a teaching strategy in skill training on satisfaction level of students.[11]

In nursing education, evidence is also available for using medium fidelity, high fidelity and virtual reality simulation for teaching the skill of urinary catheterization as these lead to long lasting acquisition of psychomotor skills across the globe.[18-20] A study conducted in Turkiye reported a very high satisfaction and competence level after the use of high-fidelity simulation in a urinary catheterization workshop.[21] It is recommended that while planning a workshop for teaching urinary catheterization skill to medical students, the factors identified in our study should be taken in consideration for achieving a higher level of student satisfaction.

This study had some limitations too. The sample size was relatively small, and it is a single-center study. Thus, caution should be exercised when generalizing the results. Furthermore, the study solely evaluated student satisfaction; procedural competency or long-term skill retention were not evaluated. Larger sample sizes, multiple institutions, and follow-up evaluations are necessary to be included in the future studies to fully investigate the effects of urinary catheterization workshops on students' clinical competence and performance.

CONCLUSION

The majority of the students were highly satisfied with the workshop. Around half of the participants regarded the workshop as good in all domains. The students identified some factors for the improvement of the workshop but majority of them suggested that no improvements are required.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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