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Exploring Medical Student's Perceptions And Knowledge Of Urologic Surgery: A Cross-Sectional Study

Dr Narsingh Laxman Mane[1], Dr Sunil Raghunath Patil[2], Dr Jayesh Dhabaliya[3*]

[1]MBBS, MS (Gen Surgery), MCh (Urology), Assistant Professor, Department of Urology/ Genitourinary surgery, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik
[2]MBBS, MS (Gen Surgery), Mch (Urology), Associate Professor, Department of Urology/ Genitourinary surgery, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik
[3]MBBS, MS (Gen Surgery), MCh (Urology), Professor and Head of Department, Department of Urology/ Genitourinary surgery, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik

***Corresponding Author:** Dr Jayesh Dhabaliya
MBBS, MS (Gen Surgery), MCh (Urology), Professor and Head of Department, Department of Urology/ Genitourinary surgery, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik. Email: drjayeshdhabalia@rediffmail.com

Abstract

Background: Urologic surgery is a specialized field that plays a crucial role in comprehensive healthcare. However, medical Student's awareness and understanding of urology vary widely. This study aims to assess medical Student's perceptions, knowledge, and career interest in urologic surgery and identify factors influencing their specialty choice.

Methods: A cross-sectional survey was conducted among 225 medical students from tertiary care Centre. A structured questionnaire was used to collect data on demographic characteristics, self-perceived knowledge, objective knowledge, and factors influencing career interest in urologic surgery. Responses were analyzed using descriptive statistics, chi-square tests, and logistic regression models.

Results: Among 225 respondents, 120 (53.3%) were boys and 105 (46.7%) were girls. While 80% of students reported awareness of urologic surgery, only 60% correctly identified the training pathway and job responsibilities of urologists. Self-perceived knowledge was rated as poor by 55% of students. Objective knowledge scores improved significantly with advancing academic years ($p < 0.01$). The most influential positive factor for career choice was clinical exposure (70%), while the most negatively influential factor was perceived workload (65%). Prior exposure through clerkship significantly improved knowledge scores ($p < 0.01$).

Conclusion: Although most medical students are aware of urologic surgery, their knowledge remains limited. Structured educational interventions and increased clinical exposure could enhance Student's understanding and interest in urology as a career choice.

Keywords: Medical students, urologic surgery, knowledge assessment, career interest, medical education, perception study.

Introduction The choice of medical specialty is a critical decision for medical students. While some fields attract significant interest, others remain underexplored. The objective of this study is to evaluate medical Student's perception, knowledge, and interest in urologic surgery, identify influencing factors, and assess the impact of educational interventions. Additionally, we aim to determine the role of prior clinical exposure in shaping Student's career interests.

Introduction: The choice of medical specialty is a crucial decision for medical students, influencing their future career paths and the distribution of healthcare professionals across various disciplines. While some specialties, such as internal medicine and surgery, are well-established in medical curricula, others, including urologic surgery, often receive limited exposure[1]. This discrepancy in educational emphasis can impact Student's knowledge, perception, and willingness to pursue certain specialties.[2-3]

Urologic surgery is a dynamic and essential field encompassing a range of conditions related to the urinary tract and male reproductive system. Despite its significance, studies have shown that many medical students have limited awareness and understanding of urology, often perceiving it as a lesser-known specialty compared to others.[4-5] A lack of formal exposure during medical school can contribute to misconceptions about the specialty's scope, training pathway, and career opportunities.[1]

Several factors influence Student's interest in a particular specialty, including clinical exposure, mentorship, perceived workload, and lifestyle considerations.[6] Previous research suggests that students who participate in urology clerkships or elective rotations demonstrate a higher level of knowledge and a more favorable perception of the field.[7-10] Thus, assessing the impact of educational interventions and clinical exposure on medical Student's perception and knowledge of urologic surgery is vital in guiding future curriculum development.

This study aims to evaluate medical Student's perception, knowledge, and interest in urologic surgery, identify influencing factors, and assess the role of prior clinical exposure in shaping career interests. By analyzing these aspects, we hope to provide insights that could inform educational strategies to enhance student's understanding and engagement with urology.

Methods: A structured, anonymous, and validated questionnaire was designed and distributed to 225 medical students. The questionnaire was developed based on prior studies assessing medical student's perceptions and knowledge of surgical specialties and was reviewed by experts in urologic education for content validity. The survey consisted of multiple sections, including:

1. Demographic Information: Gender, academic year, prior exposure to urology, and career aspirations.

2. Self-Perceived Knowledge: Students rated their understanding of urologic surgery on a Likert scale (1 -very poor, 5 -very strong).

3. Objective Knowledge Assessment: A set of multiple-choice questions (MCQs) covering fundamental topics in urology, including anatomy, common diseases, and treatment approaches.

4. Career Interest Factors: Evaluation of factors influencing student's consideration of urology as a career, such as exposure to role models, job opportunities, work-life balance, and competitiveness of the field.

5. Clinical Exposure and Experience: Questions regarding prior urology clerkships, surgical electives, and shadowing experiences.

The survey was distributed electronically using a secure online platform. Participation was voluntary, and informed consent was obtained from all participants before data collection. Two follow-up reminders were sent to maximize the response rate.

Statistical Analysis Data were analyzed using SPSS software. Descriptive statistics, including mean, standard deviation, and frequency distributions, were used to summarize the data. Categorical variables were analyzed using chi-square tests, while continuous variables were assessed using independent t-tests or ANOVA, as appropriate. Logistic regression models were employed to identify significant predictors of career interest in urology. A p-value < 0.05 was considered statistically significant.

Results: The demographic breakdown of the 225 medical students surveyed. It highlights the gender distribution, academic year representation, and prior clerkship experience in urologic surgery. The

majority of participants were male (53.3%), with a fairly even distribution across the four years of medical school. Additionally, 35.6% of students had prior exposure to a urology clerkship, which may have influenced their perception and knowledge of the specialty. (Table 1). The student's awareness and knowledge levels regarding urologic surgery. While 80% of students reported being aware of the specialty, only 60% correctly identified the training pathway required to become a urologist. Furthermore, just 55% demonstrated a correct understanding of an urologist's job role, indicating a significant knowledge gap that may stem from limited exposure to the specialty during medical training. (Table 2).

Table 1: Demographic Characteristics of Participants

Characteristic	**Number (n=225)**	**Percentage (%)**
Gender: Male	120	53.3%
Gender: Female	105	46.7%
Year of Study: 1st	55	24.4%
Year of Study: 2nd	60	26.7%
Year of Study: 3rd	50	22.2%
Year of Study: 4th	60	26.7%
Prior Clerkship in Urologic Surgery	80	35.6%

Table 2: Awareness and Knowledge of Urologic Surgery

Parameter	Correct Response (%)	Incorrect Response (%)
Awareness of Urologic Surgery	80%	20%
Knowledge of training pathway	60%	40%
Understanding of job role	55%	45%

Discussion: To bridge the knowledge gap in urologic surgery, medical schools should consider incorporating structured specialty rotations and mentorship programs. Prior research by Whiles et al[1]. demonstrated that students with early clinical exposure to urology showed a higher likelihood of considering it as a career option. Similarly, Binsaleh et al[2] found that targeted educational initiatives significantly improved Student's understanding and interest in surgical subspecialties.

Comparing our findings with existing literature, Kim et al[7]. highlighted that the underrepresentation of urology in medical curricula limits Student's career choices, a concern echoed in our study. Jayakumar et al[5]. further emphasized that mentorship and structured clerkships play an essential role in shaping Student's perceptions of surgical fields. Similarly, Kerfoot et al[6]. found that medical students exposed to specialty rotations demonstrated a higher affinity for pursuing subspecialties, reinforcing our conclusion that structured exposure to urology enhances career interest.

Longitudinal studies, such as those by Jones et al[7]. and Bigot et al[3]., have suggested that continued engagement with a specialty through clerkships and mentorship significantly increases knowledge retention and career inclination. Given these insights, we recommend integrating structured specialty rotations, targeted lectures, and faculty mentorship programs into medical education to improve Student's perception and interest in urology.

Future studies should explore the long-term effects of structured exposure to urology on career decisions. Additionally, research should examine how different teaching modalities, such as simulations and interactive learning, influence Student's engagement with urologic surgery.

Conclusion Although most medical students are aware of urologic surgery, their knowledge remains limited. Structured educational interventions and increased clinical exposure could enhance student's understanding and interest in urology as a career choice. Future studies should explore long-term effects of educational initiatives and innovative teaching methodologies to bridge this knowledge gap effectively.

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