

# The perception and competency of undergraduates in urology: Is the clinical exposure necessary?

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## Abstract

**Objective:** The objective of this study is to investigate medical students' perception, choices of future career, and competency in urology.

**Methods:** A cross-sectional survey was distributed among 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> (interns) year medical students at King Saud bin Abdulaziz University for Health Sciences using both hard copies and soft copies. Major outcomes were medical students' perception, future career decision, and core skills in urology.

**Results:** The overall response rate was 51.3%. A total number of 163 responses (122 were males and 41 females) were collected. Only 8% indicated that they would pursue a surgical career in urology and 42% thought that they had received a good clinical exposure to urology. Of the participants, 67.5% viewed urology as a male-dominated field. Only 17% of the respondents either agreed or strongly agreed that they were considering a future career in urology. Female students were less likely to consider a urological career ( $P < 0.01$ ). About 32.5% were confident at urethral catheterization. About 66.9% felt that a workshop day to enhance urological skills and knowledge will be beneficial. Females were more confident at assessing a urological case in an acute setting ( $P < 0.05$ ).

**Conclusion:** Most of the students agreed that their urology exposure was inadequate and their confidence at urethral catheterization was low. As in many different global studies, urology is still regarded as a specialty with a male dominance. This report is consistent with the global decline in formal urological education.

**Keywords:** Medical education, training, undergraduates, urology

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## INTRODUCTION

King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) is one of the leading health educational facilities in Saudi Arabia. College of Medicine at KSAU-HS,

in association with the National Guard Health Affairs, provides a high level of medical education through a 6-year program consisting of three phases. The first phase (Preparatory Phase), which is the first 2 years of medical

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school, comprises courses in the English and Arabic languages and basic sciences such as Anatomy, Physiology, Histology, Pharmacology, and so on. The second phase (Basic Science Phase) on the 3<sup>rd</sup> and 4<sup>th</sup> years has a set of ten blocks, 5 blocks per year. During each block, students learn the basic sciences pertaining to a body system (e.g., Musculoskeletal, Renal, and Cardiovascular) and their clinical implications. The third phase or the Clinical Phase on the 5<sup>th</sup> and 6<sup>th</sup> years has 8 blocks, 4 blocks per year. These blocks consist of clinical rotations in medicine, surgery, obstetrics and gynecology, pediatrics, family medicine, and their subspecialties. Medical students have a mandatory rotation in urology as part of their surgical rotations during the 4<sup>th</sup> year.

There is an immense increase in the number of urological diseases that are being encountered in both primary and secondary health services.<sup>[1]</sup> In addition, there has been a raising concern regarding the amount of urological education and exposure the medical students receive.<sup>[2]</sup> In the Western literature, multiple studies have examined medical students' exposure to urology. The results were quite alarming. In the United States (US), there has been a decline over five decades in students' teaching and exposure to urology during the preclinical and clinical years, in which the author warned of its dire consequences if left untreated.<sup>[3]</sup> Lebastchi *et al.* reported that only 8.7% of 346 urology residency applicants had a mandatory urology rotation during the American Urological Association Match of 2016.<sup>[4]</sup> In Canada, a survey conducted in 2013 states that 44% of final-year medical students considered their urological education to be insufficient.<sup>[5]</sup>

Multiple studies state that females are less likely to consider a career in urology.<sup>[6,7]</sup> In a more recent Canadian study, 70% of medical students thought of urology as a male-dominated field.<sup>[8]</sup> The same study states that urology had the second greatest gender discrepancy with a male-to-female ratio 4:1, while the first was obstetrics and gynecology with the gender discrepancy reversed. A recent study by Allahiany *et al.* was conducted to assess medical student's perception of the urology curriculum provided by universities in Saudi Arabia. They found nearly half of the respondents (48%) believe that urology is primarily a male specialty, and majority of those considering a career in urology were male students.<sup>[9]</sup>

There is a notable deficit in addressing the local urological education and exposure, and students' view of urology remains underreported. The aims of this study are to investigate undergraduates' perception, future career

choice, and clinical skills in urology as well as to determine any gender differences in these matters.

## METHODS

This is an observational cross-sectional study conducted in Riyadh's and Jeddah's KSAU-HS campuses in 2017 (January–December). A validated questionnaire was adopted from Jones *et al.*<sup>[7]</sup> Participants were 5<sup>th</sup> (subsenior students), 6<sup>th</sup> (senior students), and 7<sup>th</sup> (interns) year medical students. The survey was distributed in both hard copies and soft copies using Google Survey and was distributed using the official E-mail of KSAU-HS. A nonprobability convenient sampling method was implemented. The research proposal was reviewed and approved by the International Review Board at King Abdullah International Medical Research Center. The primary outcomes were (1) future career preference, (2) exposure to urology, (3) perception of male dominance in the field, (4) confidence at performing a basic urological procedure, (5) attitude toward a urology workshop, (6) referral, and (7) assessment of acute urological cases.

### Statistical analysis

The Statistical Package for the Social Sciences (SPSS) version 23 (Armonk, NY: IBM Corp) was used for data analysis. Descriptive data were presented as frequencies (%). Independent sample *t*-test was used to compare two independent means. Differences were measured at 95% confidence interval. *T*-test with  $P < 0.05$  was considered statistically significant.

## RESULTS

A total number of 163 responses (122 males and 41 females) were collected, with a 51.3% response rate. Eighty-four percent of the respondents had completed their urology rotation. Only 8.6% of the respondents have reported that they are going to pursue a career in the field of urology [male vs. female; 10% vs. 2.5%, Figure 1]. The male-to-female ratio was 12:1. Forty-two percent were satisfied with their clinical exposure to urology during clinical years (male vs. female; 42% vs. 42.5%,  $P > 0.05$ ). Urology was perceived as a male-dominant field by 67.5% (male vs. female; 67% vs. 72.5%,  $P > 0.05$ ). The level of a student did not affect the perception of male predominance ( $P > 0.05$ ).

Only 17% of the respondents either agreed or strongly agreed that they were considering a future career in urology, and female students were less likely to consider a urological career (male vs. female; 20% vs. 10%,  $P < 0.01$ ). When asked about the confidence at performing urethral catheterization, 32.9% responded with either agree or strongly agree (male vs. female; 35% vs. 27%,  $P > 0.05$ ).

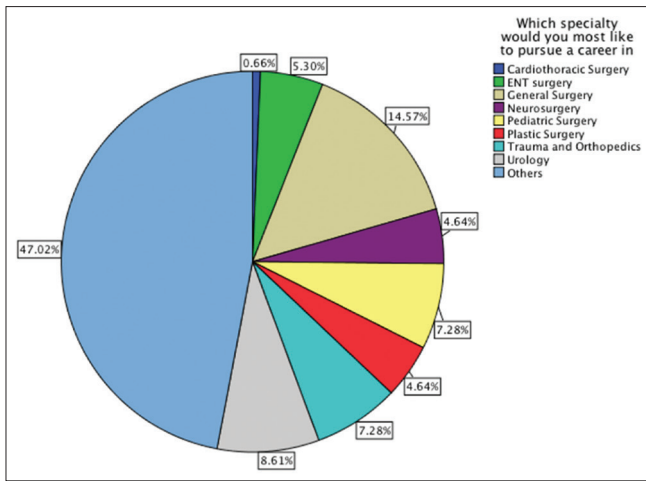


Figure 1: Undergraduates' future career preference

Most students (66.9%) responded that a urology workshop would assist in learning core urological topics and clinical skills (male vs. female; 67.7% vs. 78%,  $P > 0.05$ ). In addition, 44.8% felt confident at making a referral to a senior (male vs. female; 45.4% vs. 43.9%,  $P > 0.05$ ) and 30% were confident in assessing acute urological cases, with female students being more confident at making such assessment (male vs. female; 27.2% vs. 39%,  $P < 0.05$ ). A summary of the results is presented in Figure 2.

DISCUSSION

At KSAU-HS, a urology clerkship is mandatory, and students are expected to fulfill the rotation objectives. The objectives of the theoretical part emphasize on fundamental topics in urology such as genitourinary tumors, urinary tract infection, benign prostatic hyperplasia, and approach to hematuria. Students are also expected to perform supervised clinical procedures including digital rectal examination, insertion and removal of urethral catheters, and even cystoscopy to interested students. Students' feedback is essential and is a cornerstone of improvement.

Recent studies showed that the number of medical schools in the US requiring a mandatory clerkship at urology for undergraduates had dramatically declined over the past five decades.<sup>[2,10]</sup> Slaughenhaupt and Ogunyemi stated that the percentage of American schools requiring a urology rotation had decreased from 99% to 5%, from 1956 to 2013, respectively.<sup>[2]</sup> In 2008, Loughlin distributed a survey to urology program directors in the US. Twenty percent of the schools had a mandatory clinical rotation in urology, while 97% offered an elective rotation.<sup>[3]</sup> The same report also stated that 68% of the medical schools had at least 1-h lectures in the preclinical years. About 65% of the program

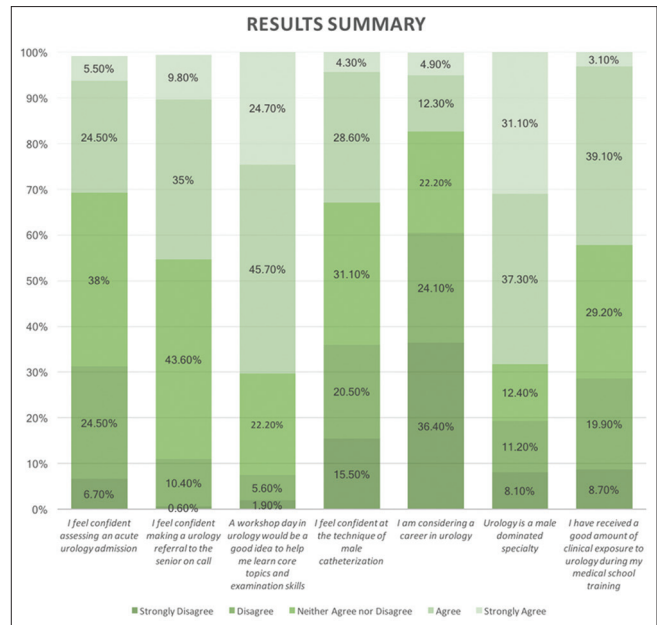


Figure 2: An overall summary of the analysis

directors responded that it was very plausible for a student to graduate without any clinical exposure to urology.<sup>[3]</sup> In Canada, a survey of final-year medical students at the University of British Columbia reported that only 41.7% had a rotation in urology.<sup>[5]</sup> The same study found that 55.8% of the students felt that their urology exposure was adequate. Another Canadian study by Kim *et al.* reported that 65.9% did not have clinical exposure to urology.<sup>[8]</sup> In Saudi Arabia, 91.1% of final-year medical students at King Saud University had rotated through urology. In addition, 63.5% of the students recommended more exposure to urology during their clinical years.<sup>[6]</sup>

In regard to sufficient clinical exposure, our analysis showed only 42% of the students thought that their rotation was adequate. This result is very similar to local and North American studies. However, unlike in Canada and the US, medical students must finish their urology clerkship prior to their graduation where 84% of the students had completed their urology rotation. Recently, the duration of the urology rotation for students at KSAU-HS has decreased from 2 to 1 week only. This represents a 50% reduction in the students' exposure duration, which would make clinical urological skills harder to obtain and be mastered due to the limited time. From all the previously mentioned studies, including ours, the majority of the students felt the need for more clinical exposure to urology during their clinical years.

Schools which mandate a clinical rotation in urology require longer rotations and provide a basic urological course to their students that have more residency candidates match in the US.<sup>[11]</sup> One of the feared consequences of the dramatic

decrease in exposure to urology is that it might drive students away from specializing in urology. In addition, the effect of this trend on patients' care is inconclusive. Kerfoot *et al.* concluded that the consequences of this eroding decrease in formal urological education are not clear and further research has to fully assess the matter.<sup>[12]</sup>

All around the world, urology is perceived as a male-predominant specialty. In the United Kingdom, Jones *et al.* reported that 46% thought that urology is a male-dominant specialty.<sup>[7]</sup> Locally, it was clearly seen in our study where 67.5% of the students agreed with the statement, as well as reported by Allahiany *et al.*, who found that 48% of the participants believed so.<sup>[9]</sup> A Canadian study stated that 70% thought that there is a great gender imbalance in urology. This gender imbalance might lead to the diversion of females considering this specialty.<sup>[8]</sup> It was clearly shown in our results that males are more likely to pursue urology as a future career than females with a 12:1 ratio. In 2012, the Canadian residency match results reported that 28 of the male applicants had urology as their first choice opposed to 7 females only.<sup>[8]</sup>

Our study examined the differences between male and female responses. Only two variables were statistically significant and showed the difference between genders: future career in urology and acute urological cases assessment ( $P < 0.01$  and  $P < 0.05$ , respectively). Females were less likely to pursue urology as a career compared to males. Female students' aversion from urology can be inferred to be due to many causes, one of which is the fear of male patients' refusal to be seen by female urologists which is a common encounter.<sup>[13]</sup> Furthermore, it might be attributed to the absence of a female role model in urology at our institute. Our study did not report the reasons behind not choosing urology as a career. However, Binsaleh *et al.* and Allahiany *et al.* investigated the reasons behind it and reached a similar outcome. The reasons for not considering urology were mainly due to social obstacles and unappealing lifestyle.<sup>[6,9]</sup> Jones *et al.* stated that the reasons for not choosing urology are the perception of urology as a field with a very narrow range of practices, poor lifestyle, and less long-term relationship with patients.<sup>[7]</sup>

When it comes to performing catheterization, Binsaleh *et al.* reported that about 51.7% and 65.32% were comfortable with male and female catheterization, respectively.<sup>[6]</sup> Whereas in our study, only 32.5% felt confident to do so. As per 66.9% of responses, more workshops and lectures are needed to help learn basic urological topics and skills. This reflects the lack of efficient lectures and clinical teaching skill sessions incorporated in the program. We

looked into catheterization specifically as a skill learned for the urology rotation because insertion of a catheter into a male urethra is a rather specific and simple procedure that is mostly related to urology.

The potential limitations of this study are the sample size and sampling method. Convenient sampling could introduce an element of sampling bias, where results cannot be generalized. A larger study on a national level including all medical schools can further elaborate the trend of formal urological education in Saudi Arabia. Furthermore, future research should address the long-term effects of this decline on patient care. While there is no available statistics of the urology Saudi Board applicants, some experts noted increase in the number of females applying to the urology programs over the past few years. This observation warrants an evaluation and deep analysis of the reasons which drive female physicians to or away from pursuing a career in urology.

## CONCLUSION

In summary, most of the students did not believe that their exposure to urology was adequate and were not confident to perform basic clinical skills even with the majority have already completed their urology clinical rotation. Choosing urology as a future career was unpopular among students generally. Female students were even far less likely to consider becoming urologists. These aggravate the recurrent local and global perception of urology as male-dominated specialty, which is also observed among our respondents. Although urology clerkship is mandatory at KSAU-HS, most of the students felt that their rotation was inadequate, which might affect their perception, skills, and career choice.

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## Conflicts of interest

There are no conflicts of interest.

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