

Do you want to be a urologist? Gender differences for medical student perception of urology: A prospective survey studyDavid Chung¹, Suvig Dua², Michael Morra¹, Karim Sidhom¹, Kunal Jain¹, Gregory Hosier¹¹Section of Urology, Department of Surgery, University of Manitoba, Winnipeg, MB; ²Max Rady College of Medicine, University of Manitoba, Winnipeg, MB**Cite as:** Chung D, Dua S, Morra M, et al. Do you want to be a urologist? Gender differences for medical student perception of urology: A prospective survey study. *Can Urol Assoc J* 2024 January 30; Epub ahead of print. <http://dx.doi.org/10.5489/cuaj.8486>

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ABSTRACT

Introduction: Gender inequality has been prevalent in the history of medicine, specifically within surgical specialties. Though there have been advances, urology has remained overwhelmingly male-dominant, with slow growth in female recruitment. This survey study evaluated whether gender-related differences in the perception of urology are present among future applicants that could account for gender disparity seen in recruitment.

Methods: An anonymized, online survey was distributed to medical students enrolled at the Max Rady College of Medicine during the 2022–2023 semester. Attracting and deterring survey statements were created using current literature to guide topics of interest. Participants rated each statement using a five-point Likert scale with optional supplemental qualitative responses. Likert ratings were compared using a Mann-U-Whitney calculation between self-identifying male and female participants.

Results: We received 90 responses over six weeks, achieving a response rate of 23%. Female students, compared to their male peers, were deterred by factors such as working in a male-dominated specialty ($p<0.001$) and working with primarily male patients ($p<0.001$). There were no significant gender-related differences for statements pertaining to interest in surgery, work-life balance, or exposure to urology.

KEY MESSAGES

- Female medical students evaluated at the single site did not feel significantly different for questions related to interest in surgery, work-life balance, and exposure to urology.
- Working in a male-dominated profession and with primarily male patients appears to be the biggest deterrent for potential female applicants.

Conclusions: In this survey study, the biggest deterrents reported by female medical students to entering urology were working in a male-dominated profession and seeing primarily male patients. There were no significant gender-related differences for questions relating to interest in surgery, work-life balance, and exposure to urology.

INTRODUCTION

Since 2001, female students have represented the majority of each graduating medical class in Canada, with females representing nearly 60 percent of total graduates.^{1,2} Despite these improvements in gender equity in the field of medicine, female applicants to surgical programs have lagged behind, only recently catching up in the 2019 Canadian Residency Match Service (CaRMS) cycle where female surgical applicants outnumbered male applicants for the first time in Canadian history.³ In Canada, the average percentage of female applicants to surgical specialties from 2000-2003 was 22%. Twenty years later (2020-2023), the average percentage of female applicants to surgical specialties increased significantly to 56%. In urology, the number of female applicants has traditionally lagged behind other surgical disciplines with an average of only 14% female urology applicants from 2000-2003. Twenty years later, although the absolute percentage of female applicants has increased in urology to 40% during 2020-2023, a significant gap remains compared to female applicants to surgical specialties as a whole (56%). This trend in Canada is echoed in America resident application data, in which female applicants to urology are still much lower than other surgical specialties despite an overall increase in females within medical schools.⁴ So far there has been limited research to better understand the underlying reason behind the ongoing gender disparity in medical student interest in urology. Therefore, our primary objective was to conduct a single institution survey-based study to better understand the impact of gender on factors that attract/deter medical students to the field of urology. Secondly, we sought to investigate gender disparity trends among applicants to urology by analyzing recent available CaRMS data.

METHODS

We performed a survey of all medical students currently enrolled at the Max Rady College of Medicine in the academic year 2022-2023. Students were recruited via email with a link to participate in the online survey. Institutional review board approval was received (HS25878).

The online survey was created and delivered using the Google Forms platform. Baseline demographics were recorded. The survey consisted of 2 main sections; 1) Reasons for choosing urology, and 2) reasons against choosing urology (see Appendix 1). Responses were graded on a Likert scale (1-5) for how strongly participants agreed with the responses. As no standard questionnaire was available for this topic, survey questions were developed from qualitative responses obtained in a similar study by Kerfoot et al.⁷ Free form qualitative responses were also

recorded. The survey was open for a 6-week period, with reminder emails sent at 2 weeks and 4 weeks. For our secondary objective, we reviewed available CaRMS data from 2000-2023.

Descriptive statistics were used for baseline characteristics. Likert survey responses (mean \pm standard deviation) were reported for each question. Mann-U-Whitney statistical calculation was performed using SPSS to compare survey response per gender. For our secondary objective, proportions of the variables were grouped in the following 6 time periods, 2000-2003, 2004-2007, 2008-2011, 2012-2015, 2016-2019, 2020-2023. Changes across time periods were analyzed using the Chi-square test for trends using SPSS. Statistical significance was set at $p=0.05$.

RESULTS

Of 400 students surveyed, 90 responded for a response rate of 23% (90/400). Of these, 66% were pre-clerkship students (1st year 35%, 2nd year 31%) with the remaining 32% of responses from 3rd and 4th year students. In terms of reported genders, 56 (62%) were female, 31 (34%) were male, and 3 (3.3%) students identified as “other”.

Figure 1 demonstrates comparison of quantitative responses for statements in regard to potential attractive qualities of a career in urology. These included statements such as “I am interested in surgery”, “I enjoy the procedural nature of urology”, “I enjoy the varied practice of urology”, “I am attracted to the compensation of a urologist”, “I have an interest in urologic disease”, “Urologists have a good work-life balance”. No statistically significant gender differences were seen for the above survey questions. Study participants were also asked if they report having had a positive role model in urology, with 52% of male students reporting yes, compared to 45% of female students.

Study participants were also asked to answer questions relating to potential deterrents to pursuing a career in urology. No statistically significant gender-based differences were seen for questions about work-life balance and exposure to urology. Female students recorded an average response of 3.66/5 when asked if they would be deterred by working in a male dominated specialty compared to their male counterparts (1.71/5, $p<0.001$). Similar difference was seen when students were asked if they would be deterred by the possibility of working with primarily male patients, with female students recording an average response of 3.27/5 compared to 2/5 in male students ($p<0.001$).

Good work-life balance, variety of surgical techniques, and opportunity to work in multiple different environments (operating room, small procedures, clinic) were cited as attractive qualities of urology as a specialty. When asked for other qualitative responses about perceived deterrents to choosing a career in urology, the most common responses were the possibility of being the subject of sexual discrimination from patient and colleagues, working in a “bro culture”, and disinterest in working with primarily male patients. Given the low number of non-binary study participants, quantitative analysis was not able to be completed. Interestingly of this subgroup, 2 of the 3 participants cited the ability to work with trans and intersex patients as the factor that most interests them in pursuing a career in urology.

Utilizing available CaRMS data, the proportion of female applicants within urology and all surgical disciplines were compared among time periods of 2000-2003, 2004-2007, 2008-2011, 2012-2015, 2016-2019, and 2020-2023. Figure 2. visually demonstrates a gradual improvement in proportion of female applicants to both urology and surgical specialties, however urology appears to still have a male majority. Within 2020-2023, female applicants made up 58% of all applicants to surgical programs, compared to 40% for urology. There has been significant increasing trend in the proportion of female urology applicants (14% in 2000-2003 to 40% in 2020-2023; $p=0.034$).

DISCUSSION

Although the number of female applicants to urology programs has been increasing with time, it continues lag behind other surgical disciplines and few studies have explored possible reasons for this. The goal of our study was to explore the impact of gender on factors that attract/deter medical students to the field of urology. In this prospective survey study, we found that female medical students were deterred by both the male dominated nature of urology as well as the possibility of working with primarily male patients. Other factors that have been identified as perceived barriers for women entering surgical disciplines such as reduced work-life balance were not different among male and female medical students in this study.

Significant gender differences were seen for two questions about potential deterrents to pursuing a career in urology: working in a male-dominated specialty and with a primarily male population. A survey of female urology residents by Jackson et al. showed that the most common challenges faced day to day was refusal to be seen by male patients, inappropriate treatment from male colleagues or patients, and sexual harassment^{16,21}. Female attendings continue to face issues with sexual discrimination in the workplace, as well as larger scale problems such as a gender pay gaps which are present to this day^{7,17}. An area for improvement in recruitment may include education around other subspecialties in urology with a higher proportion of female patients. Currently Canadian female graduates are more likely to pursue subspecialty training in more female prevalent fields such as urogynae/reconstruction and pediatrics¹⁸. Although care must be taken not to “pigeonhole” female trainees to a specific area, it does address a potential need, as there is literature that female patients prefer female physicians¹⁹. Improvement in the gender disparity in urology may even benefit patient outcomes, with potential improved outcomes for female patients treated by female surgeons^{5,6,20}.

No gender differences were noted for questions pertaining to work-life balance as well as concerns around raising a family. This has been historically thought of as a potential barrier for women considering a career in surgery.⁹ In line with our findings, a qualitative study assessing the impact of gender roles on academic surgeons performed at Western University demonstrated that female staff did not identify any personal or professional barriers to taking maternity leave⁸. Previous studies show that that perceived controllable lifestyle and quiet call shifts are among reasons that make urology more attractive compared to other surgical specialties^{10,11}.

Despite our institution's urology department primarily consisting of male staff, there were no gender differences on student perceptions regarding their quality of exposure to urology, as well as incidence of having a positive role model in urology. Given the smaller number of female urologists, it may be more challenging for women to find mentors than their male counterparts⁷. This poses a potential barrier as having a positive mentor has been identified as a significant contributor to female students pursuing a career in surgery^{13,14}. However there is evidence that suggests that simply having a positive mentor regardless of gender is more important than having a same gender mentor¹⁵.

2022 represented the first time where male applicants were the minority of applicants in Canadian urologic residency programs, which may indicate that significant improvements in improving gender disparity have already taken place. From 2000-2003 to 2020-2023, there has been a significant increased proportion of female urology applicants. Despite the improved gender diversity in urology, there remains room for ongoing improvement. In contrast, for surgical specialties, females have made up the majority of the applicant pool yearly since 2019. Regarding non-binary students, 2 of the 3 study participants cited the ability to "work with trans or intersex patients" as an attractive quality of urology as a specialty. Previous cross-sectional studies have shown that LGBTQ+ trainees felt surgical specialties were the least welcoming to non-binary students¹². Future research is required to further investigate the perspectives of LGBTQ+ students on urology and identify areas to improve inclusivity in the field.

There are several limitations to this study. A response rate of approximately 22% was seen which was below our expected participation in the study. The majority of responses (66%) were from pre-clerkship students (1st and 2nd year) who may not have meaningful clinical exposure in urology. It is therefore possible that these results may not generalize to medical students with more clinical exposure. However, we feel that perceptions of urology by pre-clerkship students is of particular importance as urology is often not a mandatory elective rotation during medical school, so early negative perceptions of the field may lead to students never pursuing further exposure in urology. No validated questionnaire was available for this particular research question, which is a limitation. As well, most survey responses ranged from 2-3.5 which may represent that students did not feel strongly about their answers or questions. Future studies are needed to assess factors that attract/deter non-binary individuals to urology, however our study did not have an adequate sample size to include them in the quantitative analysis.

CONCLUSIONS

Among medical students at our institution, there were no significant gender related differences for questions relating to interest in surgery, work life balance, and exposure to urology. However female medical students reported being deterred by both the male dominated nature of urology as well as the possibility of working with primarily male patients.

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FIGURES AND TABLES

Figure 1. Gender differences for attractive aspects of urology.

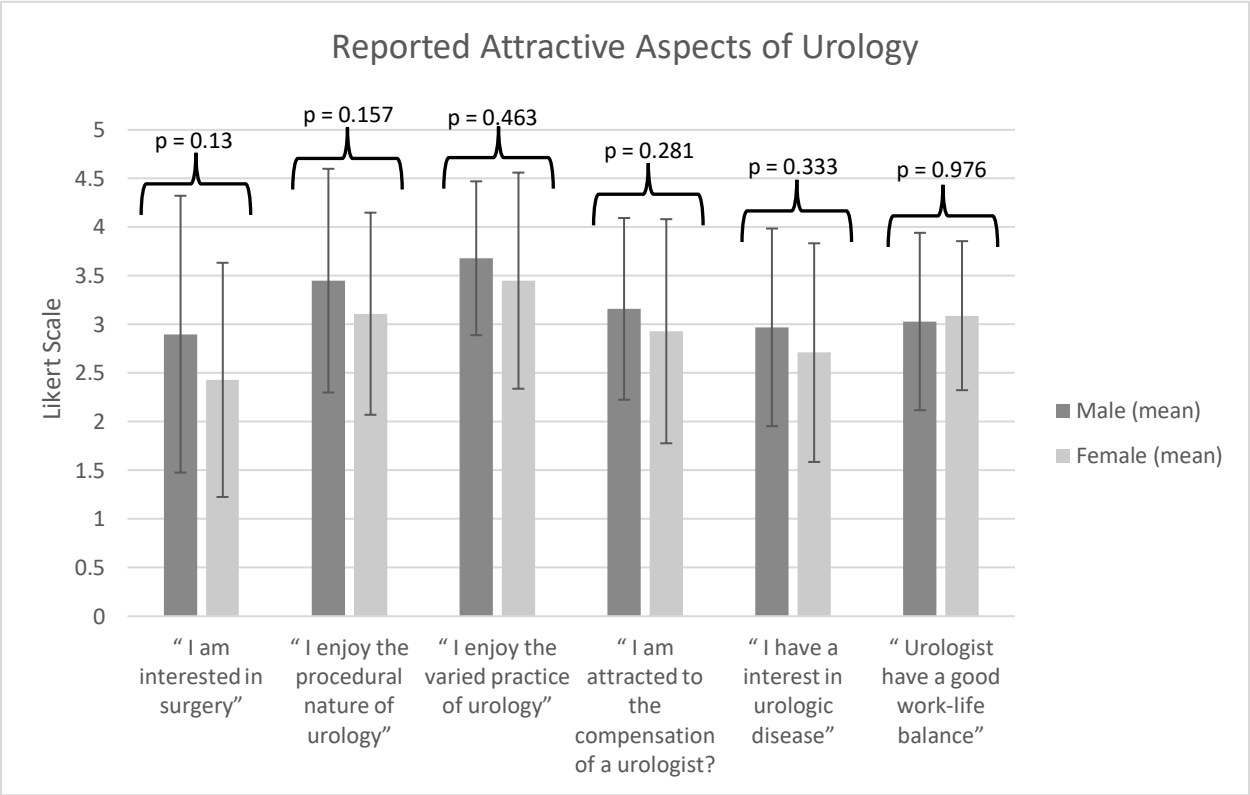


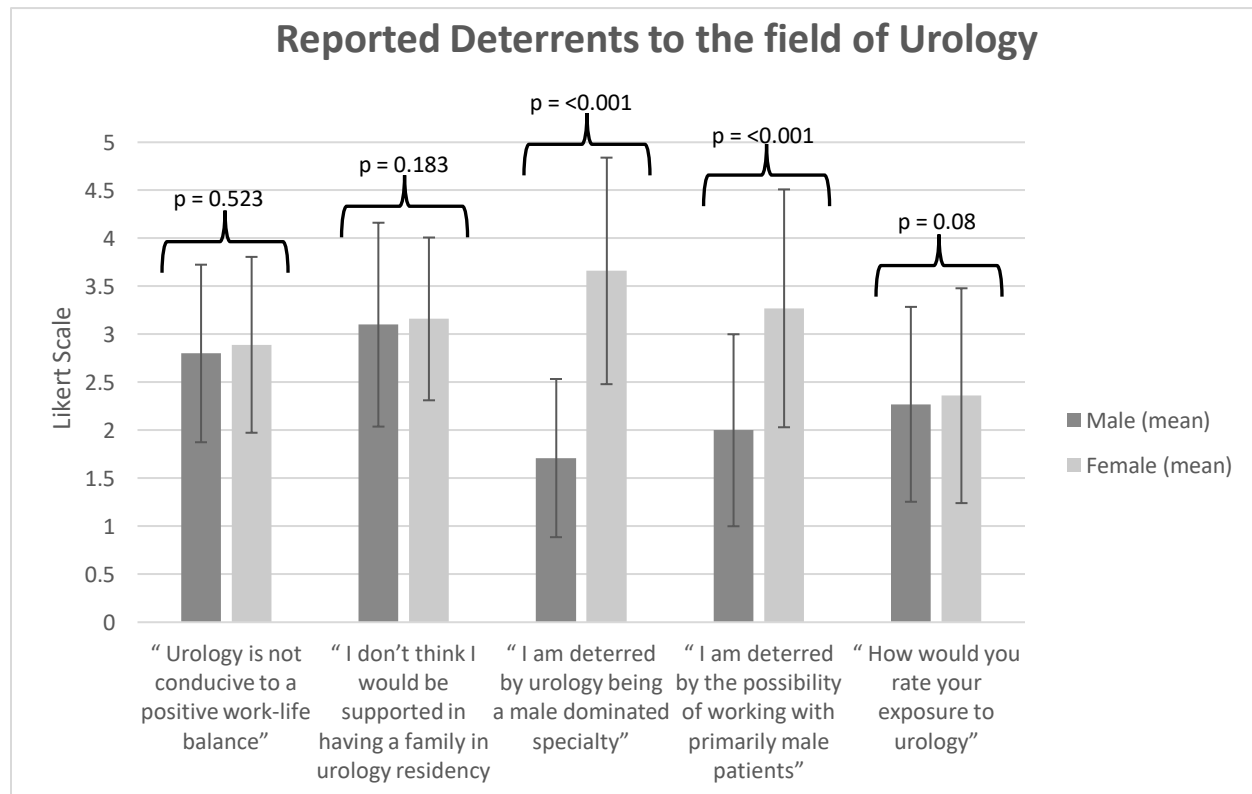
Figure 2. Gender differences for deterrents of urology.

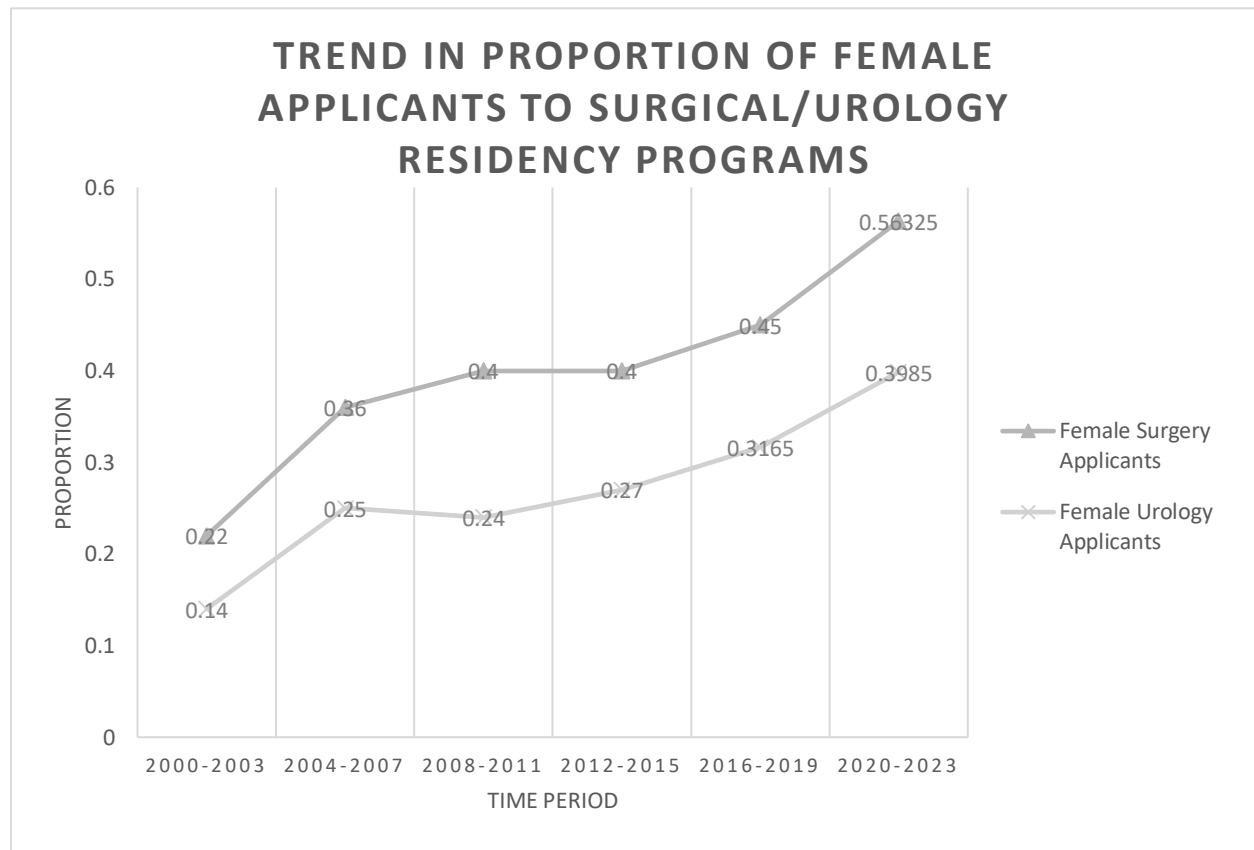
Figure 3. Trends in proportion of female applicants to surgical/urology residency programs.

Table 1. Participant demographics	
Variable	Value
Total number of participants	90
Response rate	22.5%
Gender	
Female	56 (62.2%)
Male	31 (34.4%)
Other	3 (3.3%)
Year of study	
1 st -year	31 (35.2%)
2 nd -year	27 (30.7%)
3 rd -year	14 (15.9%)
4 th -year	16 (18.2%)