

What Women Want: A Qualitative Analysis of Women's Motivation to Pursue Surgical Careers

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Abstract

Objective: This study was undertaken to explore what motivates women to pursue surgical careers.

Design: Qualitative methods were employed in this interview-based study. Interviews were recorded, manually anonymized and transcribed, and thematized using NVivo software.

Setting: This study was conducted at Memorial University of Newfoundland in Canada.

Participants: Recruitment for this study via email requested volunteers who identified as women and were medical students considering a career in surgery. Recruitment continued until data was saturated. A total of 8 participants volunteered and were included.

Results: This study revealed five themes associated with women's motivation to pursue surgical careers; mentorship, inherent aspirations, lived experience, and proof of capability, preconceived ideals. The commonest theme was mentorship. The women who participated in this study employed unconventional methods when seeking mentorship, some of which are unique to this work.

Conclusions: The most prevalent factors influencing women's motivation to pursue surgical careers are mentorship, inherent aspirations, participants' lived experience, a desire to prove

their capability, and their preconceived ideals about surgery. All factors were deeply influential over one another. A greater understanding of these factors may help future researchers and educators create a more fulfilling career for women in surgery.

Keywords: gender, women, surgery, career choice, medical education, motivation

Issues with recruitment and retention of women in surgery are frequently pondered among practitioners and scholars in surgery. While ancient history indicates that women have been active practitioners of surgery since approximately 3500 BCE, modern women have faced significant challenges in successfully pursuing a surgical career (Wirtzfeld, 2009). Historically women have gone to great lengths to enter surgical practice. One incredible example is Dr. Miranda Stewart, who is widely considered the first woman surgeon in Britain and Canada (Wirtzfeld, 2009; Ali & McVay, 2016). During the late 18th century, she practiced under a pseudonym and disguised herself as a man, a ruse she maintained until her death (Wirtzfeld, 2009; Ali & McVay, 2016). Sometime later, women such as Dr. Jennie Smillie Robertson in the late 19th century and Dr. Jessie Gray in the early 20th century faced rejection by medical schools and surgical training programs but were ultimately successful in blazing these paths for modern women in the field (Wirtzfeld, 2009). More than a century after Dr.

Robertson graduated from the University of Toronto, things have changed drastically for women in the medical profession, with 45 percent of practicing family doctors and 40 percent of practicing specialists being women (CMA, 2018). Despite this, surgical programs continue to struggle when attempting to attract and retain women.

These struggles do not appear to be related to the work of a surgeon itself. Recent research suggests that women in surgery produce equal and even exceptional surgical outcomes compared to their colleagues who are men. For example, patients treated by female surgeons had comparable hospital stays, readmission rates, and surgical complications and demonstrated a lower 30-day mortality rate to those treated by their male colleagues (Wallis et al., 2019). Despite this, in Canada and the United States, surgical training programs continue to enroll fewer women than men (Murphy, 2019).

This work was undertaken to investigate the motivation behind women's desire to pursue surgical careers. It is well established that, despite the increasing enrollment of women in medical school, among surgical specialists, the majority are men. In Canada, data published by the Canadian Medical Association in 2018 indicated that while nearly half of practicing doctors are women, they account for only 29 percent of all surgeons. Furthermore, among specialties such as neurosurgery and orthopaedics, the percentage of women was

considerably lower than this at 11 and 12 percent, respectively (Canadian Medical Association [CMA], 2018). To investigate this lagging representation of women, researchers have primarily asked, ‘what are the reasons women don’t want to do surgery?’ versus ‘what are the reasons women do want to do surgery’. Understanding what motivates rather than deters women from pursuing surgery represents a gap in the current literature on this topic. Furthermore, the vast majority of the completed work has been conducted in a quantitative, deductive manner. This study approaches women’s motivation to pursue surgery using qualitative methods to construct a theory explaining how and why these women become interested in surgical careers.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The ethical considerations of this study were approved by the Newfoundland and Labrador Health Research Ethics Board, as well as the Oxford Tropical Research Ethics Committee.

Methods

Participants were recruited to participate in this study via an email sent to students currently enrolled in the MD program at Memorial University of Newfoundland. The email invited students who identified as women, were currently enrolled in medical school, and were considering a career in a surgical speciality to participate in a qualitative study about their motivation to do so. A total of 8 students were recruited.

Semi-structured interviews were conducted with medical students who met the inclusion criteria (Table 1). At the start of each interview, consent documents were reviewed,

and verbal consent was obtained. An interview outline provided a guide, but ultimately the interviews were conducted in an open-ended and organic manner. Interviews were recorded and transcribed and entered into NVivo. As is typical in Grounded Theory work, the study was designed such that the processes of data collection and analysis coincided (Bryant & Charmaz, 2007; Chun Tie et. al., 2019; Corbin et. al., 2008; Glaser & Strauss, 2008). Focused coding occurred through a series of feedback loops whereby new data collected from each subsequent interview was incorporated to inform the ongoing data collection process. As interview data was entered, word

frequency queries were run through NVivo and theme nodes were created manually based on commonalities identified through this process. All of the data contained in the nodes were reviewed manually and those that were repetitive or contained the same information were merged. Ultimately all of the collected data was expressed through the final theoretical coding process. This outline is depicted in Figure 1.

Results

Data analysis was conducted using NVivo 12 for Mac. At the end of the final data analysis stage, five nodes contained information pertain-

Figure 1

Feedback Loop Between Data Collection and Analysis

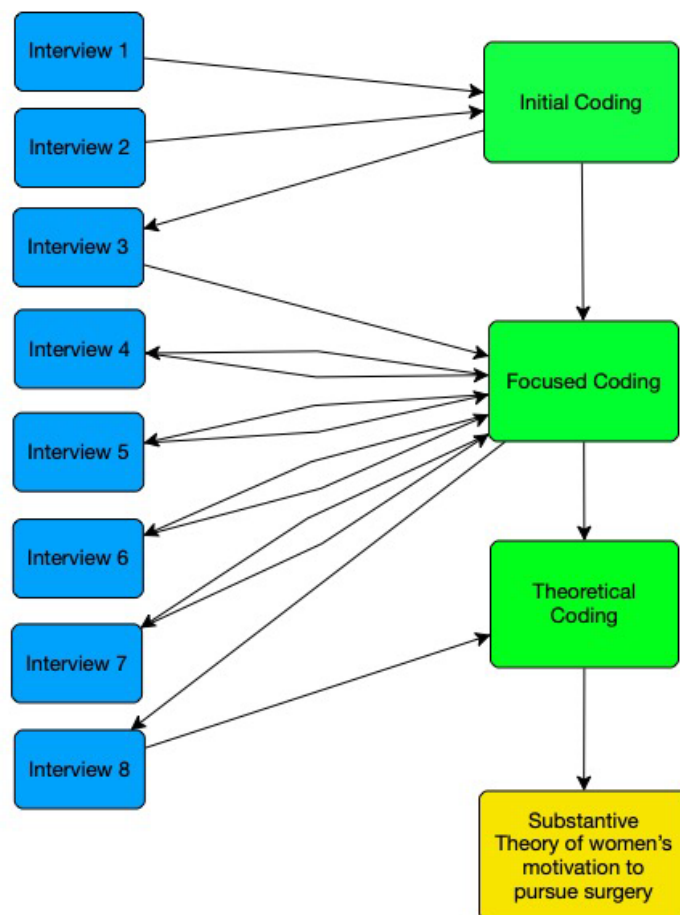


Table 1

Study Inclusion Criteria

Criteria
<ul style="list-style-type: none"> Identifies as female Enrolled in medical school before CaRMS match Considering career in surgery

ing to the overarching themes from the data set (Table 2).

Mentorship and Role Modeling

Mentorship was a pervasive topic for the women who were interviewed, albeit in a very broad manner. All eight interviewees included aspects of mentorship when describing their motivation to pursue surgical careers; however, there was significant variation in who the mentors were, when and how mentors or role models entered their lives, and in what context or aspect of their lives. Common examples of role models included family members and physicians or surgeons with whom the participants had worked. Of particular interest was the prevalent nature of figures from popular culture or fiction, including women who are doctors with a strong presence on social media and fictional or real women scientists and doctors portrayed on film or television.

Family members cited as mentors or role models were parents or siblings of any gender and included both medical professionals and those who were not. Of note, when participants identified male role models, such as fathers, they were medical. Conversely, women, such as mothers, identified as role models, were from both medical and non-medical backgrounds.

“...my dad is a role model and I spent my whole life kind of watching him make sacrifices for his patients and for his job and I guess I’ve come to realize all the time how admirable that is” Participant 3

“I can’t think of anybody from real life who is a surgeon, but my mom is an engineer and I always found it interesting how there weren’t very many women who worked with her and that she still managed to do it” Participant 2

Participants in this study had varying experience with role models who were surgeons. Interestingly, some individuals who described negative experiences with surgeons described how it had provided them with the perspective that they were capable of doing the same job while improving upon this type of behavior.

“...the anesthesiologist who was a woman made me feel really comfortable and taken care of but my experience with the surgeon was very cold and created a lot of anxiety for me. With that said I did feel overall like it seemed like a pretty cool job and um it occurred to me that you can actually do that job and still present yourself like the anesthesiologist did” Participant 4

Other individuals had experiences with surgeons as role models that they considered quite positive and alluded to modeling themselves as surgeons or as individuals after these experiences.

“...one in particular who springs to mind doctor [x] who is an obstetrician and gynecologist who I really admire. She’s taught us a lot and is somebody that I think represents the type of person and the type of career that I aspire to have” Participant 1

Table 2

Final Themes

Theme (node)	Average data coverage by node	Number of participants contributing to node
Mentorship and role modeling	66.6%	8
Inherent aspirations	36.6%	6
Lived experience	23.3%	7
Proof of capability	18.0%	6
Preconceived ideals	12.1%	5

A unique observation from this data set related to how these students lacked conventional mentorship actively sought it out in innovative ways. For example, several students commented that a factor in their decision to participate in the study was the opportunity to engage with a woman in surgery.

“...I googled you and saw that you were a lady surgeon so I thought it would be pretty cool to meet you...” Participant 2

In another example of seeking mentorship from unconventional sources, participants discussed turning to popular culture or social media as a means to identify role models and mentors.

“I guess I never really thought about it that way and it sounds kind of stupid, but I think that doctors on tv definitely played a role... It’s interesting that so much of what we do is influenced by tv and stuff. Also, I guess on Insta (sic) I follow... a lot of doctors and surgeons or residents and I think they have probably all had some impact on me.” Participant 7

“there is a science show... hosted by a woman and I recently read that her show was turned down a bunch of times because and the reason was quoted to her that their audience was mostly... boys... and they didn’t know how the audience would respond to a women or just like female presenter and I used to watch that show before I read the article with my little nieces but now I absolutely love it and feel like the same is maybe true in surgery where maybe the audience is boys because girls don’t see girls in that role if that makes sense ...she is around role model in a way” Participant 4

“I have always found like women in science pretty inspiring. They are rare role models so they stand out and kind of make you feel like you can do anything... there is a Twitterverse (sic) following of like STEM women and I find them to be super inspiring” Participant 6

Inherent Aspirations

Second, only to mentorship, the participants’ own aspirations were discussed most prevalently. These aspirations varied but were largely connected to the participants’ desire to be impactful. In many cases, this meant them having a positive impact on their patients.

“...I think people are feeling like the world in general isn’t a great place um and I guess now as a scientist and a doctor eventually ... I would like to do small things or big things even in peoples’ lives that will make the world seem less bad...” Participant 4

In many cases, participants’ aspirations were linked to the previously discussed lack of representation and mentorship in surgery and how they may inspire change. In these cases, participants cited a desire to use their voice to implement or incite change for the better within the profession for women, marginalized populations, and minorities.

“I also believe that people should have equal access to all healthcare which is hard if you don’t feel comfortable with a male surgeon and all of them are male.” Participant 7

“surgeons have a strong voice and I think that me as a surgeon and by being a representative for homosexual women and for women is a step in that direction.” Participant 1

Lived Experience

The third commonest theme to arise among the data set as a motivator was participants’ lived experience. Often this lived experience was representative of their experience with surgery; however, other aspects of their lives were represented as well. For those who expressed their lived experience with having had surgery themselves, both negative and positive experiences were influential.

“... the anesthesiologist who was a woman made me feel really comfortable and taken care of but my experience with the surgeon was very cold and created a lot of anxiety for me. With that said I did feel overall like it seemed like a pretty cool job and um it occurred to me that you can actually do that job and still present yourself like the anesthesiologist did.” Participant 4

“I had my tonsils taken out when I was young, and I remember the surgeon being so nice that I felt really sad leaving the hospital. I hope I can be like that.” Participant 5

The majority of the non-surgical lived experience that was discussed centred around the COVID-19 pandemic. The pandemic has had both positive and negative impact on the women who participated in this study in terms of their motivation to pursue a surgical career.

“... the pandemic has put things strangely in perspective in terms of how fragile and important the health system is and also how it all doctors are responsible for setting good examples and presenting facts when they are ... sometimes hard to tell or to know if they are true...” Participant 5

Proof of Capability

Throughout the interviews, participants alluded to a thirst to prove their capability to either themselves, their loved ones, or society as a whole. In the majority of cases, this was thematically tied to gender and their experiences as women.

“... just proving that I am capable probably mostly to myself because everybody else seems to believe in me more than I do...” Participant 5

“I have the feeling that maybe as a woman I need to improve (sic) that I can do things as well as a man can.” Participant 1

While in most cases, the participants’ desire to prove themselves was cited as a positive motivator in their pursuit of a career in surgery, one participant expressed concern about whether this particular aspect of their motivation was a frivolous contribution to self-deception and would ultimately lead them to make a poor decision.

“...the hard part is deciding if it is worth dedicating so much of my life to it and then also whether it is really what I want or if I just feel like I’m trying to prove myself.” Participant 8

Preconceived Ideals

The final major theme to arise from the data set was ideals conceived by the participants’ understanding of surgeons, their work, and their roles. Participants largely perceived the ‘surgeon’ as an individual with the patients’ best interest at heart and a particular skill set to improve their lives.

“I really like the fast-paced sort of environment and I think I would be good at handling that... it seems like you need to be really organized and good at time management and I feel like I’m really organized and would be really good at keeping pace with that.” Participant 3

Participants were also motivated by what they perceived as the work of their future selves as surgeons.

“I have always kind of liked working with my hands and ... I think it would be a career I would really enjoy.” Participant 7

Mentorship and role modelling, inherent aspirations, lived experience, proof of capability, and preconceived ideals pertaining to surgical careers were the most common themes arising from discussions with participants in this study about their motivation to pursue such careers. As each theme independently arose from the data set and was interpreted, it became clear that each specific theme influenced and was influenced by the others.

Discussion

This research has uncovered interesting aspects of how medical students who are women become motivated to pursue surgery careers. While each participant’s experience and the meaning they attach to those experiences varied widely, themes arose from the data set organically and expanded throughout data collection and analysis. The most common theme to arise was mentorship and role modelling; this is consistent with other published work on this topic, mainly quantitative, that identify mentorship and role modelling as

highly important to career choice (Azizzadeh, 2003; Drolet et. al., 2014; Jagsi et. al., 2014; Neumayer et. al., 2002; Park et. al., 2005; Richards et. al., 2009; Scott et. al., 2007; Thakur et. al., 2001). Several unique points were identified through this research around how these women became interested in surgery.

First, previous quantitative work has established that students rank interactions with role models or mentors as highly important to their career choice (Azizzadeh et.al., 2003; Drolet et.al., 2015; Jagsi et.al., 2014; Neumayer et.al., 2002; Park et.al., 2005; Richards et.at., 2009; Scott et.al., 2008; Thakur et.al., 2001). Strong mentorship programs are identified as very valuable in the recruitment of new surgical trainees and identified as a weakness among programs when it comes to recruiting women (Azizzadeh et.al). While most participants in this study described an absence of female role models or even representation within surgery, many of them reverse engineered this negative experience into a more positive motivator. Instead of allowing this lack of mentorship to frustrate them or create a barrier, these women saw themselves as instruments of change and expressed a desire to participate in the solution. The realization of a scarcity of women in surgery became an inciting event for them to pursue it more scrupulously to achieve their aspirations and improve conditions for women who come after them.

Next, women remedied their lack of mentorship by reaching out to find mentorship in creative ways. As indicated in the results section, women found mentorship from fields outside of surgery, including other areas of medicine and science. However, a particularly noteworthy observation was the penchant for

participants to identify role models from popular culture. The women interviewed identified women surgeons in film, television, and social media as influential in their career decision making. While this has not been reported previously for women in surgery specifically, The Scully Effect, referring to the television portrayal of a woman in science and medicine in the 1990s, has been credited with a significant increase in women working in STEM that followed through the late 1990s and early 2000s (The Geena Davis Institute on Gender in Media, 2020). An investigation into this phenomenon has supported the role that entertainment media plays in influencing people's life choices (The Geena Davis Institute on Gender in Media, 2020). This evidence, along with the findings from this study, indicates that women value female representation and that it is instrumental in developing their interest and motivation toward their chosen fields. These findings also indicate that women are willing to look for role models in unexpected ways. As younger generations who increasingly live their lives online continue to enter medical school, this may become increasingly true.

The lack of representation and mentorship that these women have encountered while pursuing surgery as a career echoes throughout the results of this study. The participants discussed their own inherent aspirations frequently, and these aspirations tended to be related to their desire to positively impact society or the profession. This was tied closely to mentorship; participants expressed their dissatisfaction with the lack of representation they found among those practicing within their desired career path and identified themselves as part of the potential solution. One such example is a participant's com-

ment "surgeons have a strong voice and I think that me as a surgeon and by being a representative for homosexual women and for women is a step in that direction."

Participants viewed their potential surgical careers as multifaceted; they wished to positively impact patients, the inclusive nature of the profession, and the messaging to society as a whole from a trusted position. It was clear that this group of participants valued their perceived ability to impact society as both women and doctors and that these values meaningfully influenced their career motivation. It is interesting to note that this study was carried out during the COVID-19 pandemic, and one participant cited this lived experience as influential to their desire to be impactful on a societal level stating 'the pandemic has put things strangely in perspective in terms of how fragile and important the health system is and also how it all doctors are responsible for setting good examples'.

Participants cited life experiences as meaningful and instrumental in developing both their motivation to pursue surgical careers and their preconceived notions of how that career might look. These experiences were meaningful in various ways, with some participants identifying specific preconceptions or ideas about the profession that were attractive to them and others identifying aspects that they felt compelled to improve. Apart from frequently discussed behavior that they have witnessed from surgeons throughout their education thus far, participants made statements such as 'I really like the fast-paced sort of environment and I think I would be good at handling that' indicating the ideas they hold pertaining to the professional work itself. Participants in this study perceived both positive and negative experiences as motivat-

ing. They aspired to emulate those doctors whose behavior they considered admirable, to avoid and improve upon the behavior of those they found inappropriate, and to participate in work that they perceived to be genuinely interesting. The participants in this study cited openly their desire to prove that they were capable of doing such work and not only practicing surgery but improving upon it.

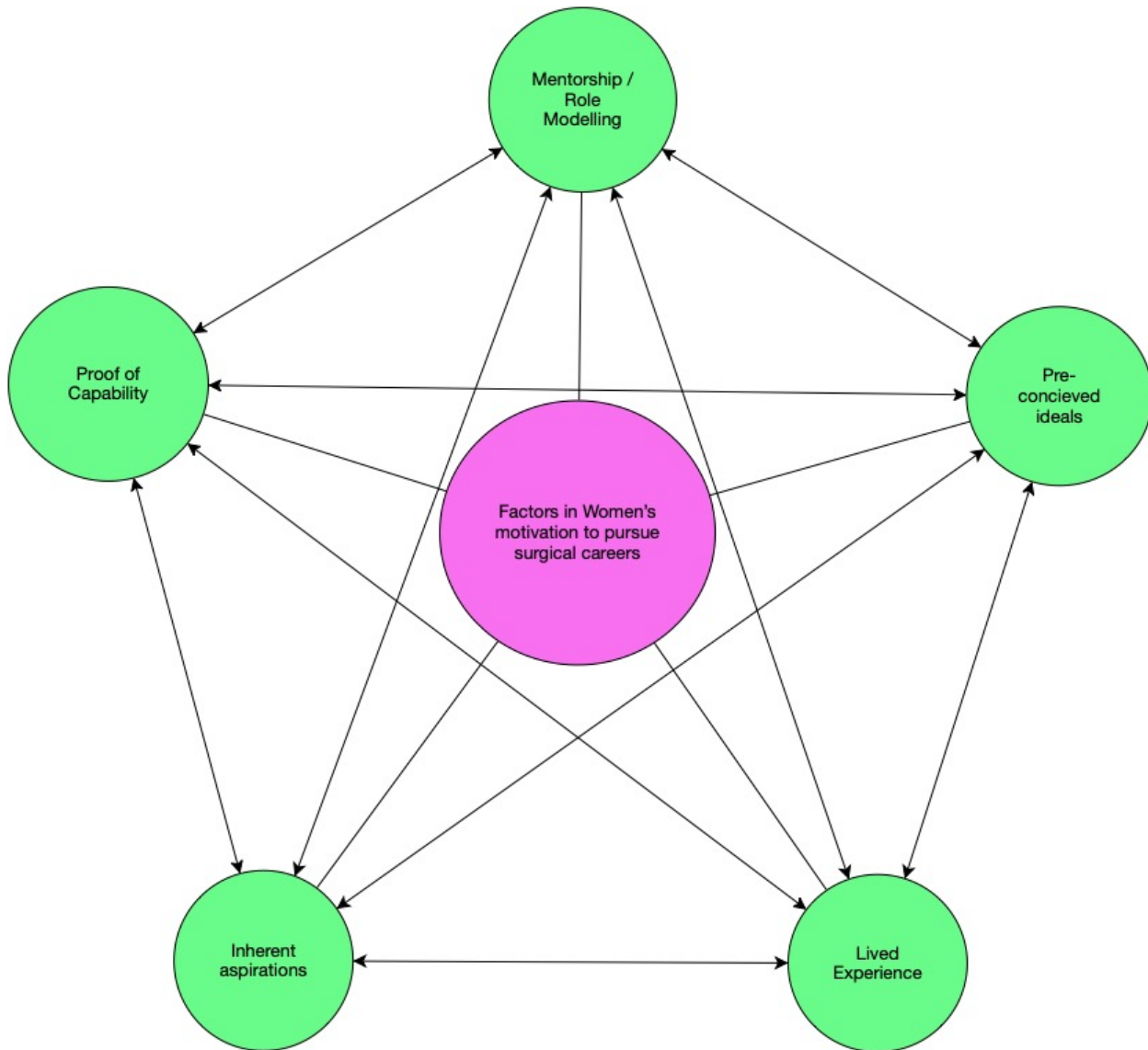
Finally, an analysis of this data emphasized the importance of how different aspects of an individual's experience and intentions interplay to produce their motivation. The resulting theory depicted in Figure 2 expresses how, in this study, each theme brought forward by the participants as a contributor to their motivation to pursue surgical careers was also closely intertwined with the other themes. This is an important observation as it speaks to the value of studies like this that aims to produce a more profound understanding of how aspects of motivation interact and are assigned value. Representative examples of this included participants whose lived experiences with surgeons resulted in their preconceived ideal behaviors, desire to prove themselves as capable, or identification of either ideal role models or a lack thereof.

Conclusions

This study suggests that the primary aspects of motivation influencing women who are pursuing surgical careers are mentorship, inherent aspirations, lived experience, proof of capability, and preconceived ideals. The results also indicate that these aspects are closely related and influential over one another, as depicted in Figure 8. This complicated and intricate process by which these women became interested in surgery

Figure 2

A Theory of Women's Motivation to Pursue Surgical Careers



suggested that singularly focused interventions to improve recruitment and attrition of women to surgery programs and improve rates of burnout among women in surgical training would be unsuccessful. While each woman interviewed had a unique set of life experiences and values that contributed, the five themes listed above were prevalent throughout the interview data with mentorship being the most pervasive. Of interest,

many of the participants in this study attached significant meaning to relationships with mentors or role models who are fictional or with whom they share only a parasocial relationship. These areas of motivation should be of interest to researchers and innovators who wish to pursue methods that will foster a more inclusive career path for women in surgery.

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