Review Article

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Motivating factors and barriers towards choosing a career in general surgery: a review of the literature

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ABSTRACT

General Surgery as a career has seen a decline in interest by medical students in the last decade. Exposure to the field at undergraduate and internship level along with time with role models and mentors in surgery is a driving force toward this specialty. With medical training focusing on generating a workforce geared toward general practice there has been less focus in undergraduate curriculum in general surgery. This along with a workforce more diligent about working hours and the demands of a surgical career has meant fewer students are considering surgical careers in an age where workload is increasing.

Keywords: General surgery, Career choices, Motivating factors

INTRODUCTION

Surgery has traditionally been a career choice for the involvement of technical procedures, teamwork and patient care. A recently reported decline in interest is multi-factorial, including family and lifestyle issues, availability of role models, an increased proportion of female medical students and lesser exposure to surgical rotations due to primary care initiatives. The United States has seen a 25% decrease of surgeons per 100000 population between 1985 and 2005 and a reported workforce shortage of 9% by 2030.² This is in contrast to an estimated workload increase of 31.5% for surgeons from 2000 to 2020.2 A survey of 16 medical schools in the United States demonstrated lifestyle and workload to be negatively influencing students in choosing a career in surgery.3 A survey of over 2000 Canadian medical students identified five factors influencing career choice in medical students being: medical life style, social orientation, prestige, hospital orientation, role models and varied scope of practice.⁴ The interest and increased

matriculation of students into a General Surgery program was found to correlate with positive interactions with both general surgery operative procedures and positive interactions with attending surgeons and surgical house staff.² Gender is also an important factor in determining the number of students opting for general surgery.⁵

THE INFLUENCE OF ROLE MODELS

Various studies have laid emphasis of the effect of role models and mentors on the career choice of medical students, especially in the early stages of medical training. The surgical faculty and its residents play an important role in paving the path of the students and their influence they can serve as positive role models for medical students. A 2005 study on general surgery residents, general surgery resident applicants and medical students confirmed that clerkship role models and mentors affected their interest in surgery. The resident applicants held this view more strongly than medical students. The resident applicants held this view more strongly than medical students.

MEDICAL SCHOOL PLACEMENTS

Surgical education must recognize the needs and demographics of the current generation of medical students which is experiencing a change. Seelandt et al.'s study of Swiss surgeons demonstrated that training is of great concern in making a decision to pursue a career in surgery.⁶ The structure in training also may affects students in their planning and assuring exposure to a sufficient number of cases.⁶

Faculty diversity is also one of the factors which affect an individual's decision in opting for surgery.8 The most significant factor affecting a medical students' decision to take up surgery is based on the participation and performance in general surgery core clerkship, quality of attending teaching and quality participation during operations. Added to this, the time spent in the operating room has a marked impact on the decision to choose surgery as a career. This has an effect in facilitating surgical education and assists in building mentor-mentee relationship with surgical attendants and residents. The operative exposure obtained during clerkship helps develops the perceptions of a surgical career. Operative exposure as well as interaction with residents and faculty has a positive influence on the student's choice. With contemporary restructuring of the medical curriculum there has been a reduction in surgical exposure; which affects the choice of surgery in medical students.9 Hagopian et al. conducted an observational study of over 100 medical students' training in Atlanta. 5 It was found that the hours spend in the Operating Room significantly correlated with going on to choose surgery as a career.

The shortfall in general surgeons has been projected as significant in affecting non-metropolitan hospitals which fail to compete against their urban counterparts. Problems arise when the residents underestimate their impact on the medical students and have competing demands on their time. It has been suggested that a non-metropolitan model of medical student education which is based on apprenticeship principles may ignite the interest for surgery in medical students. ¹⁰

PREFERENCE AND STABILITY

Medical student choice of career is not inflexible. Career choice remains stable with the progression of medical training in about 60% of students. Enrolment in General Surgical residency programs has seen a decline in interest owing to preference of another surgical subspecialty over general surgery or interest in fields which could be associated with a controllable lifestyle. A study conducted between 1996 to 2002 on the American College of Surgeons Website noted that the percentage of US medical school seniors choosing anaesthesia as a surgical specialty rose from 1.1% to 6.4%, those choosing dermatology saw a rise from 0.2% to 2.3% and those entering radiology rose from 3.3% to 6.1%. Simultaneously, the students opting for a career in

general surgery reduced from 10.4% to 7.6%. This decrease has also coincided with an increase in the enrolment of women in medical schools and purported to a lack of interest in general surgery by women.⁸

Naylor et al found in their study that were was a decline in prospective surgical trainees from the third year of medical school to fourth year.¹² Students found positive role models in surgeons during their clerkship in the third year which diminished when fourth year students were surveyed. Daly et al. recommend the positive experience with general surgery should be prolonged by means such as mentorship opportunities; increasing exposure to operative experience and encouraging participating in surgical research studies.²

THE ROLE OF STUDENT SURGICAL SOCIETIES

A study conducted at 3 UK medical schools showed that early exposure to surgery may have a positive influence on medical students in pursuing surgical training. Career guiding events which are organized by student surgical societies are notable. This study has confirmed that medical students start considering a surgical career early in their studies and being member of a student surgical society increases their awareness and knowledge about different surgical specialities. Such membership has been noted to leave a positive influence on their decision to take up surgery as their career path. It is in fact found that Student surgical societies are filling the gap where undergraduate curriculum is receding coverage of anatomy and surgical specialties. ¹⁴

LIFESTYLE

The demands which a career in surgery involve can prevent many medical students from seeing this as a feasible career option. A study by Wendel et al. reported that the practice lifestyle was a deterrent in almost 83% of men and 63% of women in choosing surgery. ¹⁵ In a survey conducted on surgical program directors, it was found that over half of the respondents' programs were affected by attrition while 34% of those programs reported to lose at least one resident mostly because of lifestyle related problems. ⁸

Studies on medical students reported that both the genders cited the concerns regarding the family and childbearing in General Surgery training. ¹⁴ A poor workfamily balance has been found to correlate to a higher degree of burnout, increased prevalence of depression and reduced career satisfaction. ⁶

PERCEIVED FUTURE INCOME AND SOCIAL PRESTIGE

Recent research has repeated that the income difference between the surgery and other less demanding specialities is continuously narrowing and causing medical students to choose specialities other than surgery.¹¹ The prestige and career opportunities available are factors which can attract medical students to surgery while other negative lifestyle factors such as long working hours during residency may act as a deterrent. These are in addition to demands on time and effort and high levels of stress.¹

THE CALLING TO SURGERY

A major factor which encourages students to partake the pursuit of a surgical career is personal character fit with the job. The findings of research studies are reflective of a general and critical attitude of the surgeons towards their own profession. Whilst the most commonly cited discouraging factors in surgery are workload (37.7%), training issues (31.3%) and inability to maintain a work life balance (14.5%); a 'calling for surgery' and fascination for it is found to be the key factor influencing the career choice for surgery.⁶

A survey of Swiss board certified surgeons identified the most positive factor for a surgical career to be surgery as a calling. These encompassed fascination with the field, the use of manual and varied skills as well patient care and the use of technology. The study also highlighted teamwork, challenges of the task, meaningfulness and responsibility, and it being a dynamic profession as positive factors in a career in surgery.

COST AND DEBT

The costs incurred in surgical training are high throughout all surgical specialities. This may be due to the practical nature of surgery which demands increased training courses. Added to this, surgical membership is also expensive. These can deter the potential students. The functional support which can be availed from training schools to support trainees to complete mandatory training may be seen as inadequate. There has been a significant change in the health care environment owing to a reduced reimbursement by government as well as the decline in support from health maintenance organizations and insurance companies. Medical students are faced with large debt burdens. In the year 1999, the debt status of medical students graduating from public and private schools was \$80000 and \$110000 respectively.1

GENDER

The increasing number of women entering the medical school over the past several decades is also reflective of the less stable choice of career in women. ¹¹ Female medical respondents have also said that positive clerkship experience is one of the reasons for them to choose a career in surgery. Other factors which promote more women to enter into general surgery are enthusiastic teaching, presence of female role models and an increased involvement in the operating rooms. ⁸

Dissimilar treatment between the male and female trainees is a major problem for the surgeons; both in practice as well as in training. The difference in treatment can prevent surgeons from performing to their highest ability, affect morale, become a reason for attrition, affect productivity and even dissuade them from pursuing a career in surgery. The presence of any forms of discrimination in surgical training will only contribute to reduced interest of the medical student in surgery.8 Women may be deterred from choosing a career in surgery because of a myriad of factors which include a lesser number of female role models and mentors, perceptions of discrimination lifestyle considerations and working hours. 16 To counter this initiatives to promote women in surgery in the UK such as WINS (Women in Surgery) from the Royal College of Surgeons of England and The Perry Initiative in the USA have arisen.

SUMMARY AND THE FUTURE

There has been a global trend of declining numbers of students pursuing a career in surgery. Research findings have been that positive role models, career and academic opportunities, brief early interventions which may include career talks, skills workshops or conferences may have a positive influence on the medical students. 13 Among reasons cited by medical students for choosing a medical career in surgery are the intellectual challenges of a surgical residency and the career opportunities and technical aspects of surgery associated with it. Good relationships with strong role models and the opportunity of being exposed to procedures during medical school are factors which promote the choice of surgery in medical students. The training model that students favour is comprised of an assimilating model which lays stress on theoretical frameworks. A non-metropolitan surgical clerkship has shown to provide medical students an improved mentorship, a more supportive learning environmental as well as an increased operative experience.¹⁰ However the above motivators are countered by the fact work-life balance is the second largest career motivator and this is an important predictor in whether a student chooses a career demanding career in surgery.14

Sutton et al in a survey of medical students from 20 medical schools across the UK identified 5 main themes from students as how to improve undergraduate careers support. These were increased exposure during clinical attachments, dedicated careers lectures, careers fairs, earlier access to careers information and the use of mentors. The UK is not alone in changing working regulations of doctors and General Surgery being a speciality that demands substantial training hours has been affected leading to restructure in training pathways. The 'Shape of Training' report outlining future plans to produce more generalists and less specialists will see training pathways and conditions change furthermore and its impact on students and trainees pursuing a career in General Surgery is awaited with interest.

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