

Influential Factors in the Selection of Subspecialty Fellowship Training among Surgical Trainees in Oman

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Abstract

Objectives: Surgical training has changed over the past few decades as more surgeons are seeking subspecialty training by applying for fellowship across all surgical specialties. Published reports have proven this trend; however, few studies explored the factors that determine which fellowship training surgical residents would pursue. In this cross-sectional study we investigated the factors pertinent to fellowship choice by surgical trainees in Oman

Methods: An online questionnaire was developed based on previous validated instruments. The survey included 14 factors considered important for choosing a future career. Statistical analysis was performed to determine item-level validity, scale-level validity, and reliability. Then survey was distributed via email and closed after 6 weeks for data analysis.

Results: The survey was distributed then the statistical analysis was done with a response rate of 60.89%. The analysis has shown that the most important influencing factor among our surgeons' sample in selecting a subspecialty was prestige with average score of 2.73 while the least reported influential factors were variety of cases (average score of 1.87) and personal interest (average score of 1.46). Only 57.7% of respondent received career choice guidance.

Conclusion: Factors influencing the choice of surgical subspecialties vary according to the group studied, and this information may be useful in designing programs and structuring professional career guidance and counselling.

Keywords: Education; Subspecialty; Fellowship; Residency; Surgery.

Introduction

Pursuing advanced subspecialty training has become an important part of training across all different medical specialties.¹ Surgical specialties had a major shift on how surgeons are trained and what set of skills they are expected to have, for example general surgery training which was a prerequisite to join subspecialty training is not required any more in many training centers to join plastic surgery, vascular surgery and cardiothoracic surgery.² Therefore, it is becoming clear that subspecialty training is becoming more popular and more residents are expected to pursue fellowship training.

Few published reports have looked into the factors that determine what subspecialty surgical residents and postgraduate are likely to pursue and what are the factors they consider when making such career choice.^{1,3-5} previous studies looked into factors that may play a role in subspecialty choice had a long list such as gender, job availability, marketability, type of practice, geographic location, personal interest, damage repair, malpractice rates, job satisfaction, financial considerations, diversity of cases, motivation Intellectual, career and lifestyle counseling in order to explore the merits of this topic and understand factors play a role on subspecialty they choose.^{2,4,6} The published work gives a general indication of what are the factors that determine what subspecialty residents and postgraduate surgeons are likely to pursue.

Against this backdrop, our plan is to investigate the factors considered most important by surgical trainees in a growing health system where a significant proportion of surgeons have yet to enroll in fellowship training. This dataset will provide valuable guidance for designing residency curricula, optimizing residents' rotations, improving recruitment and retention of surgical residents, structuring effective mentorship programs, and offering career counseling.

Methods

A cross-sectional study was conducted at the Oman Medical Specialty Board in Muscat, Oman. The study involved contacting a total of 202 residents, fellows, and postgraduates in surgical specialties, utilizing the institutional database. The population consisted of all surgical specialty trainees who had enrolled in the training program for 10 years for the period between September 2011 and September 2021.

The survey formation process involved conducting an English-language literature review using online databases such as PubMed and Embase. The purpose was to identify relevant studies on fellowship specialty selection in surgical specialties and other medical fields. By analyzing the factors evaluated in these studies, we developed a comprehensive list of factors that can influence the selection process in surgical specialties. Each investigator independently reviewed and evaluated these factors in the context of the national health system and postgraduate education setting. This evaluation process considered the relevance of these factors to our local context. Through thorough discussion and consensus-building, the research group finalized a list of important factors specifically tailored to our local context. Factors that were deemed irrelevant or incompatible with our local context, such as residency programs with a strong tradition of placing graduates into a specific subspecialty, altruism, and the relationship between residents and faculty in fellowship programs, were excluded from the final list. The final version of the list comprised 14 separate factors that the research group assessed as relevant to our health system and postgraduate education context (refer to Table 1). Each factor's influence on their choice of fellowship was assessed using a Likert scale rating (LSR) ranging from 1 to 5, with 1 indicating "not at all important" and 5 representing "extremely important." These factors encompassed various domains relevant to the decision-making process. They included practice location, working hours/on-call duties, prestige, potential financial compensation, variety of cases, intellectually stimulating subspecialty, lifestyle associated with the subspecialty, personal interest, marketability, specialty primarily involving outpatient/daycare surgery, potential to join an academic practice, potential to join a private or hospital-employed practice model, interaction with physicians in other specialties, and the impact of a mentor or role model.

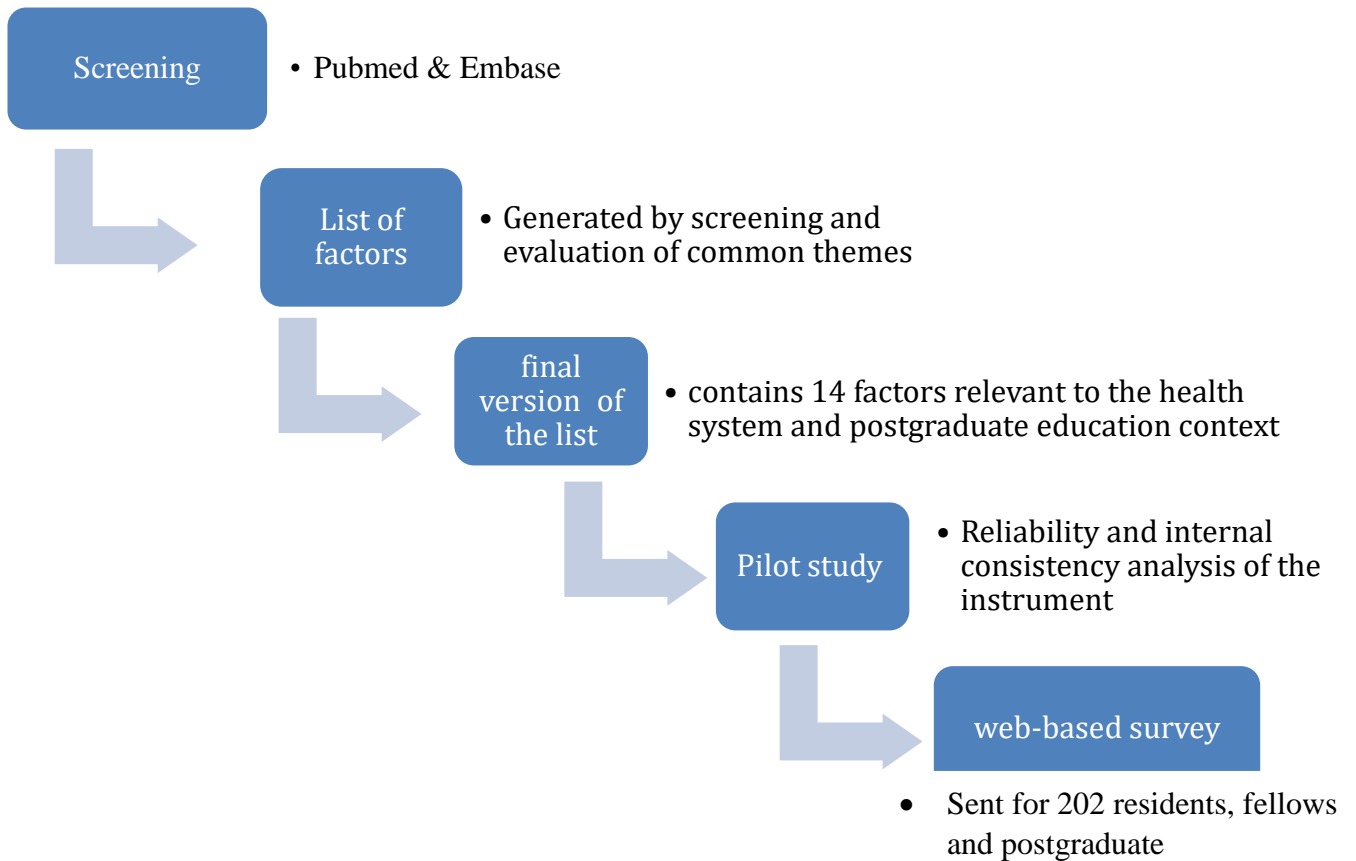


Figure 1: Flow chart illustrating the method of survey development.

Table 1: Factors Presented to Survey Respondents.

The survey asked respondents to rate each factor's influence on their choice of fellowship by using a Likert scale rating (LSR) from 1 to 5, with 1 being of not at all importance, 2 not so important, 3 somewhat important, 4 very important and 5 extremely important.

1. Practice location (i.e., a city, or region in which you expected to work)
2. Working hours/On-call duties
3. Prestige
4. Potential Financial compensation.
5. Variety of cases
6. Intellectually stimulating subspecialty
7. Lifestyle associated with the subspecialty (i.e. expected impact of social life / family)
8. Personal interest
9. Marketability
10. Specialty primarily involves outpatient/daycare surgery
11. Potential to join an academic practice
12. Potential to join a private or hospital-employed practice model
13. Interaction with physicians in other specialties
14. Impact of a mentor/ role model

To ensure the reliability and internal consistency of the survey instrument, a pilot study was conducted. A sample of 20 residents from different surgical specialties participated in this pilot study. The survey was administered to them, and internal consistency was assessed by comparing the components of the questionnaire using Cronbach's alpha. These results demonstrated satisfactory internal consistency and reliability of the survey instrument. In adherence to the guidelines set by the Institutional Review Board, the surveys were anonymized to ensure confidentiality and privacy of the participants.

Data analysis was performed by collecting the survey responses into a spreadsheet. The data were analyzed by calculating sums and means of the graded scores to provide a quantitative representation. Categorical data were presented as proportions and percentages. The level of significance was set at 5% ($P < 0.05$) to determine statistical significance. Data analysis was conducted using the SPSS package (IBM SPSS Statistics for Windows, version 21.0; IBM, Armonk, NY, USA), which provided the necessary tools for comprehensive data analysis and statistical computations.

Results

We have received completed surveys from a total of 123 respondents who belong to six different surgical programs, namely ENT, Orthopaedic, General Surgery, Obstetrics & Gynecology, Maxillofacial Surgery, and Ophthalmology. The response rate for these surveys was 60.89%. On average, each program was represented by 24 participants. The most recent survey was received approximately two months after its initial distribution.

The analysis has shown that the most important influencing factor among our surgeons' sample in selecting a subspecialty was prestige with average score of 2.73 followed by Specialty primarily involves outpatient/daycare surgery, potential to join academic practice and interaction with physician in other specialties with average score of 2.6. The least reported influential factors were variety of cases (average score of 1.87) and personal interest (average score of 1.46).

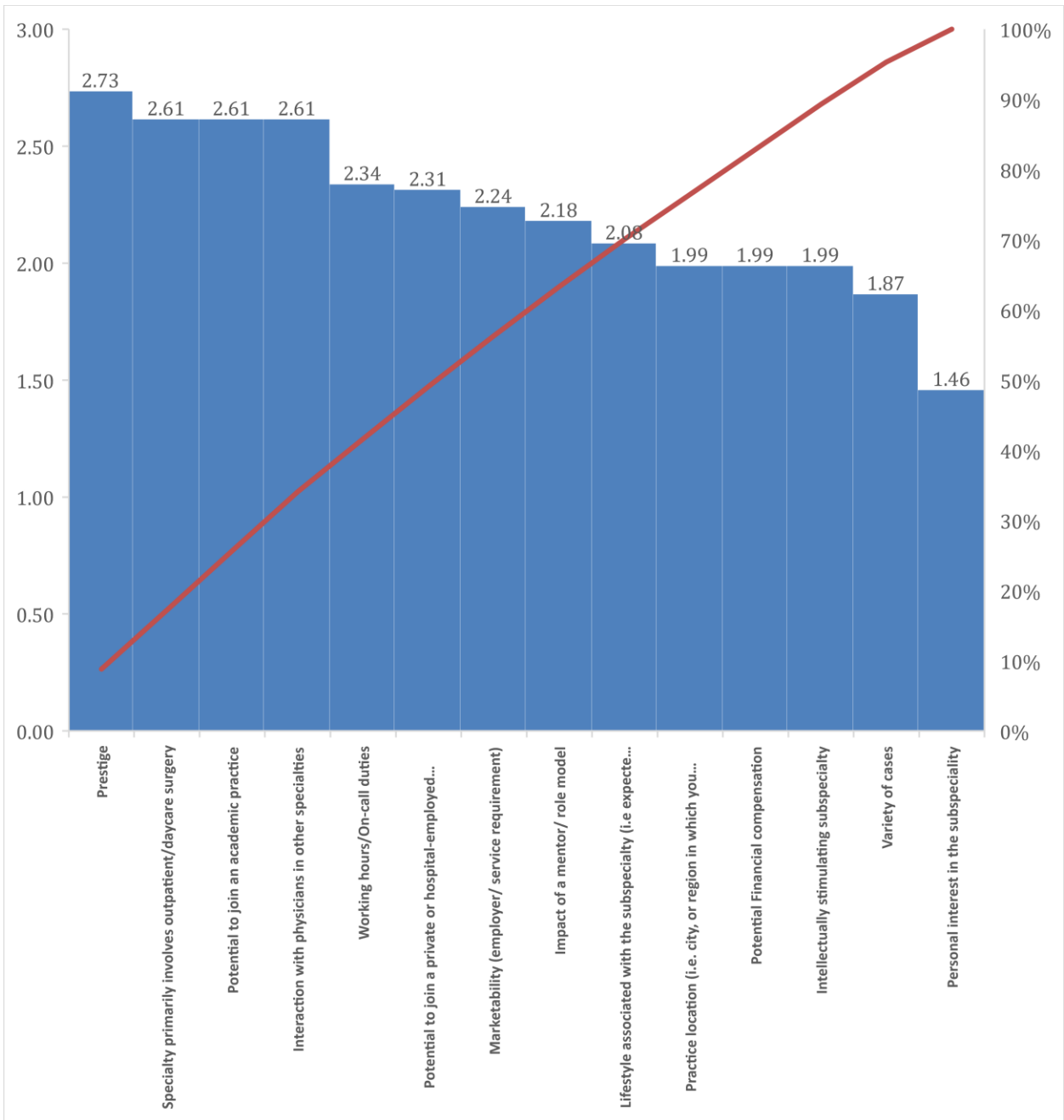


Figure 2: Mean of the score for factors influencing choice of subspecialty.

The analysis of the results for the 14 influencing factors according to the level of the surgeons who participated in the study: residents, fellows, and on-practice did not show any significant difference in perception between the three groups. Further analysis did not show any significant difference in the perception of factors between genders or even between different surgical specialties.

Moreover, participants were asked if they had, during their residency, received adequate help and support to plan their career, with 57.7% answering yes.

Discussion

In our study, which reviewed a cohort of surgical trainees and graduates, we found that factors such as prestige, specialties primarily involving outpatient/daycare surgery, potential to join academic practice, and interaction with physicians in other specialties were the most influential in the pursuit of surgical careers. Reviewing the existing literature reveals that the factors influencing surgeons' choice of subspecialties are still not well understood. Several articles have identified employment opportunities, intellectual interest, strong mentorship, surgical diversity, and lifestyle as important factors in the selection of subspecialties by residents.^{3,7,8} However, there is ongoing controversy regarding factors such as the impact of subspecialties on lifestyle and financial compensation.

Interestingly, our data differed from published works where personal interest and variety of cases in the specialty were identified as the least important factors affecting career choice. For example, Bakarman et al. reviewed a cohort of orthopedic surgeons and reported that personal interest in the specialty was the primary factor in career decision-making.⁹ Similarly, Kavolos et al. found that intellectual stimulation of subspecialties and case diversity were among the most important factors influencing career selection.⁶ In our data, orthopedic surgeons considered lifestyle associated with the subspecialty and marketability as the most important factors when applying for fellowship training. These observed differences could be attributed to cultural variations between the local society and the populations surveyed in similar studies. Furthermore, the structure of healthcare services in Oman, which may differ from other regions, could affect how participants plan their careers and select subspecialties to apply for.

Moreover, our data align with previous studies that examined gender differences. Bratescu et al. and Incorvaia et al. both examined gender differences and found that males were more likely to pursue fellowship training, while females placed more value on lifestyle factors.^{7,8} Our findings are in line with this, as female participants in our study showed that lifestyle associated with the subspecialty was more important when selecting their subspecialty compared to male participants. However, when comparing the data across surgical specialties, no significant statistical differences were observed. This may be due to the fact that most surgical trainees in our study were government-employed, working under similar conditions, and facing comparable challenges. Furthermore, our data support and extend previous studies emphasizing the critical role of resident rotations and mentorship in choosing a subspecialty.^{7,9,10} Our findings highlight the importance of these factors in the decision-making process, as respondents prioritize them when choosing their future profession. From a training design perspective, this suggests that residents should be exposed to a wide range of subspecialties and potential mentors before making their own subspecialty choice. These findings have implications for influencing graduate professional decisions to address any surpluses or shortages of surgeons in specific subspecialties. This can be achieved primarily through providing adequate help and support in career planning and dispelling any misconceptions that may exist about certain subdisciplines. However, our results indicate that only 57.7% of participants felt they received appropriate guidance in their future career decisions. We call for the establishment of effective career guidance through collaborative efforts of stakeholders responsible for the development of the healthcare system in the country.

It is important to acknowledge that the study has limitations, such as a moderate response rate, which is consistent with similar study designs where response rates rarely exceed 75% at best. Additionally, some participants may have changed their specialty or career path, or their perspective on what is important may have changed over time. There is also the possibility of recall bias, as it has been a few years since they made their career decisions.

Conclusion

In conclusion, this study sheds light on the factors influencing the career choices of surgical residents and postgraduates in pursuing subspecialties. The research highlights the importance of factors such as prestige, outpatient/daycare surgery, academic practice, and interdisciplinary collaboration. The findings provide valuable insights for designing residency curricula, optimizing rotations, improving recruitment and retention of surgical residents, and offering effective career counseling. Further research is needed to explore these factors in different contexts and to better understand the decision-making process in selecting subspecialties within surgery.

Ethical consideration: Ethical approval was obtained from the Research and innovation committee of Oman Medical specialty board on February 2022 No 2022/09/7/1582.

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Conflict of interest: There is no conflict of interest.

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