

Career in vascular surgery – the medical student's perspective

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ABSTRACT:

Aim: Under the supervision of the Department of General and Vascular Surgery of Poznan University of Medical Sciences (PUMS), a questionnaire was distributed online or as a paper version to medical students (MSs) in order to better understand the attitudes towards surgery as a specialty and to determine the reasons why students do and do not choose vascular surgery as their career path.

Materials and methods: The questionnaire was distributed online or as a paper version to MSs in the 3rd, 5th, and 6th year of the PUMS 6-year M.D. program. It provided the data on the year of study, grade point average (GPA), sex, age, respondent's specialty choice, 33 questions with responses on a 1-5 Likert scale (1 was the least important reason and 5 was the most important reason), and 2 questions with scores between 0 and 4. A total of 136 Polish MSs of PUMS completed the survey.

Results: For MSs who choose vascular surgery as their career path, "endovascular capabilities of vascular surgery" and "higher income possibilities than a general surgeon" were the most important reasons. The "poor availability of work in other places than the vascular surgery department of your choice, few such clinics in the region" was the most important reason not to choose vascular surgery. A role of gender was also noted - 13% of male MSs classified gender as an "important factor", in contrast to 60% of female MSs.

Conclusions: The findings of this study might help to develop better strategies to attract future trainees to surgical specialties, particularly vascular surgery, and improve work environment.

KEYWORDS:

vascular surgery, specialty, female, career, students

INTRODUCTION

The surgical specialties seem to be unattractive to medical students (MSs), especially women, and a small number of MSs choose vascular surgery as their career path. Over the past decades, lifestyle issues have become a major concern.¹ Therefore, there is a growing desire among MSs and residents to choose specialties that can be reconciled with personal life, which is difficult in surgical specialties. Gender-related issues and family plans may also discourage students from choosing a career in surgery.² This study aimed to find possible reasons for the decreasing number of MSs who choose vascular surgery as a career path by analyzing the attitudes towards surgery and vascular surgery of the MSs of Poznań University of Medical Sciences (PUMS). Medical students in the Polish medical edu-

cation system get into medical schools directly after high school. The studies last six years, and the residency training system in vascular surgery is similar to the British one, and also lasts six years. The results obtained in this study may help to develop better strategies to attract future trainees to surgical specialties, particularly vascular surgery, and improve work environment.

METHODS

A questionnaire (questionnaire 1 in appendix) was designed, and a survey was conducted either online or in a paper version. The questionnaire consisted of four preliminary questions with respect to the year of study, sex, age, grade point average (GPA); 33 responses were scored on a 1-5 Likert scale (1 was the least

important reason and 5 was the most important reason). There were also 4 yes/no questions and 2 questions with scores between 0 and 4. There was also one open-ended question with regard to the specialty choice, which was then evaluated and coded as the surgical or non-surgical specialty for further analysis. Answers were either directly downloaded into an Excel spreadsheet or entered manually from the paper questionnaires. A total of 136 Polish MSs of PUMS completed the survey.

Quantitative data (age, GPA) in this study included the number of respondents, mean, standard deviation, median, quartiles, and minimum and maximum values. For the qualitative data (nominal and ordinal scales) contingency tables, including the percentage of a given characteristic in the data, were created. The variables on the interval measurement scale were presented as means and standard deviations, or as medians and inter-quartile ranges in the case of non-normally distributed and data on ordinal scales.

Categorical data were presented as percentages. The assumption that the data follow a normal distribution was checked by the Shapiro-Wilk’s test. The analysis of groups was performed using the Mann-Whitney *U*-test. The Fisher’s exact test was used to examine the significance of the association between two kinds of classification. All results were considered significant at $p < 0.05$. Statistical analysis was performed using the following statistical packages: STATISTICA 10.0 PL (StatSoft., Inc.) and StatXact 9.0 (Cytel Studio).

RESULTS: A total of 136 Polish MSs of PUMS completed the survey. The mean age of respondents was 24 years; the respondents were in the third year (18 students), fifth year (45 students), and sixth year (73 students). The mean grade point average (GPA) of the students was 3.99, with the maximal possible value of 5.00 and the minimal possible value of 2.00. The highest score of GPA in this study was 5.00 and the lowest GPA was 3.00. The group of students comprised of 92 women (68% of respondents) and 44 men (32% of respondents). The analysis of selected responses was performed in students in the sixth year only, because those questions concluded the whole training process of a 6-year M.D. program, including five holiday internships and electives.

The questionnaire included questions to assess how often students had a chance to participate in surgical procedures during their 6-year M.D. program, including five holiday internships. One question was focused on active participation of students - assisting during an operation, the other question focused on passive observation of a surgical case. Approximately 64% of MSs assisted during more than 4 operations, whereas 12% did not assist during any operation.

Tab. I. Characteristics of respondents (N=136)

GENDER	
Male (n, %)	44 (32%)
Female (n, %)	92 (68%)
Age (median, interquartile range)	
24 (24–25)	
Year of study	
3 (n, %)	18 (13%)
5 (n, %)	46 (34%)
6 (n, %)	72 (53%)
GPA (median, interquartile range)	
4 (3.65–4.35)	

Ninety-seven percent of MSs had a chance to observe an operation more than 4 times. Exposure to a certain specialty earlier in MSs’ training, e.g., IFMSA (International Federation of Medical Students’ Associations)/ERASMUS program /other international practice experience might influence the choice of future career. Out of 73 students of the sixth year, 52% had no such experience during their studies, 22% of MSs admitted that it influenced their decisions, and 26% of MSs claimed that international internships did not influence their specialty choices.

Based on the results, 56% of MSs participated in a vascular surgery procedure during their studies. The results show that 92% of MSs did not participate in any research project focused on surgery or vascular surgery. An interesting point, that could influence motivation of a student to choose a certain specialty, was the presence of a role model in the medical field. Forty-nine percent of MSs claimed to have a medical mentor or a role model, 51% of MSs did not have one.

It was also assessed whether a positive correlation between good grades and the choice of surgical specialty can be observed. In order to evaluate this issue, GPAs were classified as “low” (below 3.4), “average” (3.5 to 4.4), and “high” (4.5 and more). Out of 136 respondents, 124 provided their GPAs - 12% of them and a “low” GPA, 65% were classified as “average” and 23% as “high” GPA. All respondents had to answer an open-ended question on the specialty of choice. It was then classified as the surgical or non-surgical specialty. The Fisher-Freeman-Halton exact two-tailed test was conducted and the result was insignificant ($p=0.727$); no association was found between the GPA and the choice of surgical specialty.

There are many factors that influence the specialty choice. The summary of results in all MSs can be found in Table 2, and a summary in students of the sixth year is presented in Table 3.

The students of the 6th year were asked to assess if surgery was appealing as a career. Medical studies in the last year were

Tab. II. Questionnaire results of medical students in the 3rd, 5th, and 6th year (N=136)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Important factors when choosing a specialty – all MS years							
Academic nature of a specialty and research possibilities	26	13	44	60	30	41	2.7
No night shifts	23	31	54	74	23	31	2.5
Possibility of starting a private practice	73	99	12	16	15	21	3.9

Based on scores 1-5: "unimportant" (ranks 1 and 2), "important" (ranks 4 and 5), "neutral" (rank 3).

Tab. III. Questionnaire results of medical students in the 6th year (N=73)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Important factors when choosing a specialty							
Academic nature of a specialty and research possibilities	18	13	52	38	30	22	2.4
No night shifts	28	21	51	31	21	15	2.6
Possibility of starting a private practice	68	50	11	8	21	15	3.9
No urgent / emergent cases	25	18	42	31	33	24	2.6
Earlier income potential and fast independence	67	49	14	10	19	14	3.8
Low stress levels at work	48	35	23	17	29	21	3.4
The narrow scope of knowledge needed for a certain specialty	35	26	36	26	29	21	2.9

Based on scores 1-5: "unimportant" (ranks 1 and 2), "important" (ranks 4 and 5), "neutral" (rank 3).

Tab. IV. Questionnaire results of medical students in the 6th year (N=73)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Reasons why Surgery Was Appealing as a Career							
Positive public perception of the specialty	29	21	37	27	34	25	2.8
Better job opportunities than non-surgical specialties	40	29	34	25	26	19	3.0
Clinical experience in medical school	18	13	59	43	23	17	2.3
Your mentor/role model	25	18	56	41	19	14	2.5
Income potential/high future earnings	44	32	23	17	33	24	3.2
Reasons why Surgery Was Not Appealing as a Career							
Preference for "controllable lifestyle" specialties	55	40	26	19	19	14	3.4
Too long training	22	16	51	37	27	20	2.5
Excessive amount of stress at work	45	33	34	25	21	15	3.2
Physically demanding work	52	38	27	20	21	15	3.4
Limited ability of childbirth during residency/ postponement of family plans	51	37	30	22	19	14	3.3
Gender-related concerns – discrimination at work, unfair career possibilities	49	36	29	21	22	16	3.2
Negative influence of / no support from potential mentors	40	29	27	20	33	24	3.2
Disinterest in surgery	49	36	36	26	15	11	3.3

Based on scores 1-5: "unimportant" (ranks 1 and 2), "important" (ranks 4 and 5), "neutral" (rank 3).

Tab. V. Questionnaire results of medical students in the 6th year (N=73)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Reasons Vascular Surgery Was An Appealing Specialty							
Prior vascular surgery research	19	14	60	44	19	14	2.2
Better job opportunities than a general surgeon	42	31	31	23	23	17	3.1
Cases in vascular surgery are interesting	47	34	29	21	22	16	3.2
Endovascular capabilities of vascular surgery	45	33	29	21	23	17	3.2
Higher income possibilities than a general surgeon/financial reasons	58	42	27	20	12	9	3.4
Reasons why Vascular Surgery Was Not An Appealing Specialty							
Future loss of traditional operative and endovascular cases to cardiologists and radiologists	30	22	45	33	22	16	2.7
Negative influence of / no support from potential mentors	43	31	33	24	23	17	3.1
Repetitive procedures, e.g. hemodialysis access surgery	26	19	38	28	34	25	2.8
Other specialties with endovascular capabilities being more interesting	40	29	27	20	32	23	3.1
Other surgical specialties being more interesting	41	30	27	20	30	22	3.3
Fear of unfair competition and unfair career possibilities	31	23	36	26	32	23	2.9
Too long training time	29	21	42	31	27	20	2.7
Poor availability of work in other places than the vascular surgery clinic of your choice, few such clinics in the region	51	37	26	19	22	16	3.4

Based on scores 1-5: “unimportant” (ranks 1 and 2), “important” (ranks 4 and 5), “neutral” (rank 3). The results might not complete; in some questions, some students did not circle any rank, and so, the answer was discarded.

Tab. VI. Questionnaire results of medical students in the 5th year (N=45)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Reasons Vascular Surgery Was An Appealing Specialty							
Prior vascular surgery research	16	7	62	28	22	10	2.2
Better job opportunities than a general surgeon	51	23	27	12	22	10	3.2
Cases in vascular surgery are interesting	48	22	27	12	24	11	3.2
Endovascular capabilities of vascular surgery	53	24	9	4	38	17	3.5
Higher income possibilities than a general surgeon/financial reasons	53	24	27	12	20	9	3.4
Reasons Vascular Surgery Was Not An Appealing Specialty							
Future loss of traditional operative and endovascular cases to cardiologists and radiologists	40	18	40	18	20	9	2.9
Negative influence of / no support from potential mentors	56	25	22	10	22	10	3.5
Repetitive procedures e.g. hemodialysis access surgery	40	18	42	19	18	8	2.8
Other specialties with endovascular capabilities being more interesting	49	22	35	16	16	7	3.1
Other surgical specialties being more interesting	47	21	31	14	22	10	3.2
Fear of unfair competition and unfair career possibilities	54	24	24	11	22	10	3.4
Long training time	27	12	34	20	29	13	2.7
Poor availability of work in other places than the vascular surgery clinic of your choice, few such clinics in the region	65	29	17	9	18	8	3.7

Based on scores 1-5: “unimportant” (ranks 1 and 2), “important” (ranks 4 and 5), “neutral” (rank 3).

Tab. VII. Questionnaire results of medical students in the 3rd, 5th, and 6th (N=136)

	IMPORTANT		UNIMPORTANT		NEUTRAL		AVERAGE SCORE
	%	N	%	N	%	N	
Gender-related differences in assessment of possible negative aspects of surgical specialty. Female Medical Students (N=92)							
Preference for "controllable lifestyle" specialties	61	56	18	17	21	19	3.6
Physically demanding work	59	54	17	16	24	22	3.7
Limited ability of childbirth during residency/ postponement of family plans	59	54	19	18	22	20	3.6
Gender-related concerns – discrimination at work, unfair career possibilities	60	55	18	17	22	20	3.6
Fear of unfair competition and unfair career possibilities	40	37	26	24	33	30	3.1
Male Medical Students (N=44)							
Preference for "controllable lifestyle" specialties	41	18	39	17	20	9	3.0
Physically demanding work	27	12	59	26	14	6	2.5
Limited ability of childbirth during residency/ postponement of family plans	23	10	52	23	25	11	2.5
Gender-related concerns – discrimination at work, unfair career possibilities	13	6	80	35	7	3	1.8
Fear of unfair competition and unfair career possibilities	39	17	45	20	16	7	2.9

Based on scores 1-5: "unimportant" (ranks 1 and 2), "important" (ranks 4 and 5), "neutral" (rank 3). The results might not be complete; in some questions, some students did not circle any rank, and so, the answer was discarded.

chosen to be analyzed, because they were more experienced in the medical field and more market-oriented, which gave them a better perspective to rank the causes. The results are presented in Table 4

Reasons to choose vascular surgery as a specialty

Medical students in the 5th and 6th years were asked to assess the importance of different reasons for choosing or rejecting vascular surgery as a specialty. The questions focused on MSs' interests, support of mentors, technical aspects, financial reasons, and job perspectives. The results are presented in Table 5 for the 6th-year MSs and in Table 6 for the 5th-year MSs.

Reasons not to choose vascular surgery as a specialty

The most and least important factors with respect to the vascular surgery specialty choice are summarized in Table 5 for the 6th-year MSs and in Table 6 for the 5th-year MSs.

Gender-related issues

The work of a surgeon is physically demanding and requires a specific lifestyle. It requires availability, which can lead to postponement of family plans. Other issues are sex-based discrimination and resulting unequal career opportunities. For instance - fear of unfair competition. Therefore, the choice of any surgical specialty is to some extent associated with gender-related issues. One of the aims of this study was to determine how strongly the most prevalent drawbacks of surgical specialties may influence the decision-making process, regarding the career of MSs. The results are presented in Table 7.

It is noticeable that male MSs are not as concerned as female MSs, as regards the gender-related discrimination at work and unfair career possibilities. Only 13% of male MSs classified this as an "important factor", in contrast to 60% of female MSs. The average was 1.8 for male MSs and 3.6 for female MSs. Merely 18% of female MSs assessed this as "unimportant" compared to 80% of male MSs. The U Mann-Whitney test

was conducted and the result was significant ($p < 0.000001$). Thus, a statistically significant association was found in the spread of answers for male and female MSs.

“Work being physically too demanding” was important for 59% of female MSs and for 27% of male MSs. Also, 59% of male MSs considered this point as “unimportant”, as compared to 17% of female MSs. The U Mann-Whitney test result was significant ($p = 0.000006$). Accordingly, a statistically significant association was found. “Preference for “controllable lifestyle” specialties” was an “important” issue for 61% of female MSs, compared to 41% of male MSs. The U Mann-Whitney test result was significant ($p = 0.027395$). Hence, a statistically significant association was found in the spread of answers for male and female MSs.

The vital issue of family planning during residency was also evaluated. “Limited ability of childbirth during residency/postponement of family plans” was considered as an “important” difficulty by 59% of female MSs and 23% of male MSs. The median of the results for male MSs was $Me = 2$ and for female it was $Me = 4$. The U Mann-Whitney test was conducted and the result was significant ($p = 0.000002$). Therefore, a statistically significant association was found in the variation of answers between male and female MSs. Despite the evident differences in the assessment of the abovementioned issues between male and female MSs, the problem of “fear of unfair competition and unfair career possibilities” was regarded as “important” by 40% of female MSs and 39% of male MSs. The median for male and female MSs was the same, $Me = 3$. The U Mann-Whitney test was insignificant ($p = 0.553343$). Therefore, no statistically significant association was found in the differences between answers of male and female MSs.

DISCUSSION

The group of students surveyed in this study belongs to the Generation Y, that is people born between the 1970s and early 2000s. This generation is searching for job flexibility and independence. Moreover, it values the time that can be spent with family and friends, which is significantly more important than career. Those MSs and residents seek lifestyle-friendly specialties, including surgical subspecialties.³⁴⁵⁶ Furthermore, the current generation of MSs finds personal preference and career opportunities as very important factors in choosing a career path.⁷ The focus of this study was on choice of vascular surgery as a career path, but it also focused on choosing a career in surgery in general. Many MSs decide to pursue a surgical career during their medical school, “50% for men

and 70% for women” according to Kathrin L. Mayer, M.D.⁸. Therefore, we chose the students in the 3rd, 5th, and 6th years for this study.

One of the studied questions was if prior exposure to a certain specialty, e.g. during ERASMUS or IFMSA holiday internship or other international practice experience, might influence MSs to choose this specialty as their future career. More than a half of the sixth-year MSs (52%) had no such experience during their studies, but 22% out of the remaining students admitted that this influenced their decisions. So, it clearly might inspire many students’ career ideas. In surgical specialties, there are many procedures and techniques performed, which can impress and influence the MSs’ perception of a specialty.⁹ Allowing MSs to perform some simple tasks, e.g. suturing, can also encourage them to pursue a surgical career. For that reason, it was relevant to reveal how many MSs had a chance to actively participate by assisting during an operation. Around 64% of MSs assisted during more than 4 operations, while 12% did not assist in any. Ninety-seven percent of MSs had a chance to passively observe an operation more than 4 times during their studies. Also, there was no statistically significant association between the GPA and the surgical specialty choice.

An interesting issue that could influence a student to choose a certain specialty could be the presence of a role model. Almost a half of the surveyed MSs (49%) had a medical mentor or a role model, and 51% of MSs did not have one. This is not a good result, taking into consideration that role models exert a strong influence on the MSs choices of future careers.¹⁰ Moreover, many female MSs are discouraged from surgical careers, because they have no female role models.¹¹ Another vital factor might be peer encouragement.¹² There is still a strong tendency for stereotyping of surgeons as being lonely and having no time for family and leisure. Exposure to positive role models, instead of exhausted surgical residents, might work against such views.¹³ We did observe many factors influencing specialty choice, the most significant one being the “possibility of starting a private practice”, which was an “important” factor for 73% of all 136 MSs. A possible explanation for this fact could be that students from Generation Y strongly value their autonomy and work-relax balance. The private practice gives a sense of independence and opportunity of high income. The results of all the MSs are presented in Table 2, and those in the 6th-year MSs only in Table 3.

Gender issues are an important factor influencing the choices of MSs. According to a study entitled “Patient preference for genders of health professionals”, there is an overall male

gender preference for a specialty of a surgeon.¹⁴ This suggests female residents may be at the risk of experiencing sexist behavior at work and from their patients. The numbers of female and male surgery residents are similar, but women are rarely advancing to a position of a leader in academic surgery.¹⁵ An interesting point is that The Women In Surgical Training (WIST) organization of the Royal College of Surgeons of England has a plan to “increase the number of female consultant surgeons to at least 20% of the total within the next ten years”¹⁶ It is known that gender discrimination is a potential challenge that is experienced in the learning environment by both female and male MSs, and exposure to such behavior might influence choice of specialty.^{17,18} Based on our results, male MSs were not as concerned as the female MSs regarding the gender-related unfair career possibilities and discrimination at work, as only 13% of male MSs classified this as an “important factor”, in contrast to 60% of female MSs. Only 18% of female MSs assessed this as an “unimportant” issue, compared to 80% of male MSs. This clearly proves that men are not as worried about gender discrimination at work as women. The physically demanding character of work was an important factor for female MSs but not for male MSs (59% of men considered this point as “unimportant”).

According to our study, female students had much stronger preference for controllable lifestyle than male students. A limited ability of childbirth during residency or postponement of family plans were another matters in which a clear difference of views between men and women could be observed. This problem was an important factor for 59% of female MSs and for only 23% of male MSs. This might be explained by the fact that women cannot be “part-time mothers”, while men can simply delegate the task of taking care of their newborns and toddlers to their spouses. Female physicians have more family care responsibilities than their male counterparts.¹⁹ This is also strongly embedded in gender stereotypes in the family context. Statistically significant associations were found in all of the aforementioned comparisons of the spread of answers for male and female MSs.

Finally, we observed that the problem of “fear of unfair competition and unfair career possibilities” was an “important” issue for 40% female MSs and for 39% of male MSs. No statistically significant association was found in the differences between answers of male and female MSs. This result is optimistic, as it suggests that there is a belief among MSs that, regardless of their sex, the possibilities of career development are equal. The results are presented in Table 7.

In this study, we investigated how many MSs participated in vascular surgery procedures during their surgery rota-

tion, and how many MSs took part in a research project in the field of surgery. The results are alarming, because 92% of MSs did not participate in any research project focused on surgery or vascular surgery, and only 56% of MSs participated in a vascular surgery procedure during their studies. Slightly more than a half of all MSs had a chance to see how vascular surgery procedures are performed. This means that not every MSs could actually confront the idea of vascular surgery with reality.

In this study, students in the sixth year chose “income potential/high future earnings” as the most important factor to pursue a surgical career. The main reason why surgery is not an appealing option was that students prefer “controllable lifestyle” specialties. An interesting point is that, based on the research by John F. Eidt, vascular surgery seems to provide more controlled lifestyle than general surgery, which is highly appreciated by the surveyed female MSs.²⁰ Moreover, specializing in vascular surgery results in career satisfaction, and compared to a general surgery training, gives more controlled lifestyle and time for family, has more financial advantages, and offers increased career opportunities.²¹ The results show that endovascular capabilities of vascular surgery are on average the most important reason for MSs to choose this career. The second most important aspect for the 5th and 6th-year MSs is “higher income possibilities than a general surgeon”. Interesting cases in vascular surgery were another significant advantage mentioned by both MSs years. The results are presented in Table 5 for the 6th-year MSs and in Table 6 for the 5th-year MSs. In the Western countries, occupational prestige is a value considered to affect strongly career choice of MSs.²¹ In this study, a positive public perception of the surgical specialty was not, on average, an important aspect, and students assessed this as an unimportant or neutral factor.

We did observe that the most important cause why vascular surgery was not appealing was the “poor availability of work in other places than the vascular surgery department of your choice, few such clinics in the region”. This might be an indisputable problem for residents specializing in small cities, and MSs who do not plan to stay in the city where they study after they finish the medical school. Further highly ranked reasons were: negative influence or no support from potential mentors, “other surgical specialties being more interesting”, “other specialties with endovascular capabilities being more interesting”, and “fear of unfair competition and unfair career possibilities”. The least important reason that could influence the MSs decision was “total training time being too long”. The results are presented in Table 5 for the 6th-year MSs and in Table 6 for the 5th-year MSs.

The limitations of this study include remote, online administration of a part of the questionnaires, in a system in which answering was not mandatory. The online questionnaire was designed to disallow progressing to the next question without providing answer to the previous one. Both of the aforementioned might have caused respondents not feeling encouraged enough to provide answers, which could have negatively influenced the response rate. Another limitation was the lack of possibility to independently validate the responses, as they were all self-reported data. The overall response rate may not be high enough to reflect the opinions of the entire population of MS of PUMS. It must be remembered that the non-responders may have different motivations and opinions as to the choice of specialty. Furthermore, their lifestyle needs and priorities can vary from the responders group.

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CONCLUSIONS

In order to make vascular surgery an appealing specialty for MSs, and in particular for female MSs, it has to adjust to the needs of the Generation Y. The desires for controllable lifestyle, reasonable income, friendly work environment for both sexes, and fair career possibilities must be satisfied. The mentorship, especially for female MSs, is fundamental and must be well planned. The guidance should be done in a serious and encouraging way, and also the importance of role models must not be underestimated. Many students show interest in surgical specialties and value the potential of vascular surgery procedures. Reducing negative factors influencing career choice of MSs and highlighting the advantages of the specialty are key to attract MSs to vascular surgery. Considering the low number of vascular surgeons, this would also be a hopeful improvement for patients with vascular diseases.

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