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THE SPECIALITY CHOICES OF FUTURE PHYSICIANS – A STATE UNIVERSITY SAMPLE

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Abstract

Objectives: Our study aims to examine the thoughts of final-year (intern) medical students about their specialty choices and the reasons underlying these thoughts.

Materials and Methods: Our study is a descriptive cross-sectional study. Intern students studying in 2022 and 2023 were asked questions about their sociodemographic characteristics and specialty choice plans. In the study, logistic regression models were created for significant variables after univariate analysis. For statistical significance, a significance level of $p < 0.05$ was accepted.

Results: The most common reason for those who did not want to specialize was the difficulty of the assistantship process, while those who wanted to specialize most commonly cited the desire to work in a specific branch that would provide professional satisfaction. It was determined that being male increases the choices for surgical sciences by 1.6 times. When socioeconomic status was examined, those with low status were found to prefer surgical sciences 4.6 times more than those with moderate status and 2.5 times more than those with high status. Choosing a surgical medical sciences increases high financial returns by 2.5 times, the desire to spend time for oneself/family by 1.8 times, the low malpractice risk in the specialty branch by 4.5 times, the difficulty of the education process by 1.8 times, and the influence of lessons/internships/instructors by 2.1 times for internal-basic medical sciences.

Conclusion: Improving the economic conditions of physicians, minimizing malpractice risks, and achieving work/life balance are the most important topics that need to be developed for the successful delivery of health services to the public.

Keywords: Medical education, specialty selection, medical student.

Introduction

The distribution of specialties chosen by physicians after completing medical school is a crucial determinant in planning and distributing the workforce in the healthcare sector.[1] Various studies have yielded different results regarding the reasons for physicians' career choices.[2,3] Factors such as financial concerns, physicians' interests, the perception of prestige, working conditions, career expectations, societal perspectives, family influence, and educational conditions are among the reasons that physicians consider effective in determining their branch.

The selection of medical specialization is a complex, dynamic, and not fully understood process influenced by various factors such as gender, economic status, personality, personal interests, clinical experience during internships, expected income level, family influence, and lifestyle.[4,5]

The career choices of medical students are a fundamental issue for public health services and medical education policies. It varies over the years and plays a crucial role in planning and developing the healthcare sector.[6]

According to the 2022 data in Türkiye, the total number of physicians is 194,688, with a ratio of 228 physicians per hundred thousand people. This ratio is 370 per hundred thousand people in Organisation for Economic Co-operation and Development (OECD) member countries. Türkiye is in an insufficient situation compared to developed countries in terms of the number of physicians per population. In Türkiye, 49.1% of physicians are specialists, 23.3% are assistant physicians, and the remaining work as general practitioners.[7,8]

A study in the United States investigated the specialization preferences of final-year medical students, revealing a significant shift in recent years.[9] The controllable perception of lifestyle was identified as the predominant factor explaining the variability in specialization preferences.[10] The variability in Türkiye is believed to be influenced by long working hours and lower-than-expected salaries. Another study found that prestige, money, and personal development are significant factors in career planning among medical students in Türkiye.[11] The state of working conditions, physicians' thoughts on income, and incidents of violence against doctors in the media are thought to lead to changes in specialty choices. Therefore, it is necessary to investigate these preferences and reasons currently. When developing health policies and making regulations related to human resources, the results of academic studies evaluating physicians' specialization areas should be taken into account.

Given the current economic conditions, increasing integration with foreign countries, changes in value perceptions, and news about violence against healthcare workers, it is essential to examine the thoughts of medical students currently enrolled in medical faculties about their future specialization areas and the reasons behind these thoughts. The tendency to specialize has decreased due to the need for a doctorate diploma to

work internationally and the lack of integration of our country's specialization education. Therefore, our study aims to examine the thoughts of final-year (intern) students at a state university faculty of medicine about their choice of specialization and the reasons underlying these thoughts.

Materials and Methods

This descriptive study is a cross-sectional study conducted on intern students actively participating in education at a state university faculty of medicine during the academic years 2021-2022 and 2022-2023. The study was conducted voluntarily, and similar studies were considered by reviewing national and international literature to form survey questions. After informing the students about the study and obtaining verbal consent, the surveys were conducted online. The study did not involve sample selection; it aimed to reach all intern students in both periods. In the academic year 2021-2022, a total of 348 interns, and in the academic year 2022-2023, a total of 325 interns received education. Intern students in the final year of medical school in the academic year 2021-2022 graduate as of July, while intern students in 2022-2023 start their internship training as of July. Within this scope, our study aimed to reach all interns in the 2021-2022 and 2022-2023 periods, thus examining the impact of problems and difficulties during the internship training period on the choice of specialization. Personal information such as the participant's full name and ID number was not requested.

The data collection tools in our study included questions about participants' socio-demographic characteristics such as age, sex, marital status, socioeconomic status, parents' professions, parents' education levels, citizenship status, the language of education, grade point average, and post-graduation plans. In the second stage of the survey, participants were asked about their reasons for wanting or not wanting to specialize, the scores they expected to receive in the specialization exam if they intended to take it, their thoughts on specialization preferences, and the reasons behind these thoughts.

The data were evaluated using the IBM-SPSS statistical software program (Version 25.0). Descriptive statistics such as number, percentage, mean ± standard deviation (SD), median, minimum (min), maximum (max), and 25-75 quartiles were used for descriptive statistics. The chi-square test was used for the comparison of categorical data. The Shapiro-Wilk test was conducted for the comparison of continuous data, and according to the normality test results, parametric and non-parametric tests were selected. After univariate analysis in the study, logistic regression models were created for significant variables. For statistical significance, a significance level of $p < 0.05$ was accepted.

In our study, the number of participants who plan to choose basic science is very limited. For this reason, basic and internal sciences were combined to interpret the study statistically. In this way, it is aimed to determine the difference between surgical science from other sciences.

Results

A total of 372 (55.3%) intern doctors participated in the study. Three students were excluded because they provided incomplete answers from the study. Of the remaining 369 students, 216 (58.5%) were female, and 153 (41.5%) were male, with an average age of 24.26 ± 1.70 (min-max 22–37) years. While 340 (92.1%) of the students were Turkish citizens, 29 (7.9%) were foreign nationals. Looking at the semester, 147 (39.8%) were interns in the 2021-2022 period, and 222 (60.2%) were interns in the 2022-2023 period. Of the participants, 46 (12.5%) stated that their financial situation was poor, 286 (77.5%) moderate, and 37 (10.0%) good.

When asked about post-graduation plans, the responses in Table 1 were obtained.

Table 1. Post-graduation plans of participants*

	n (%)
I am thinking of getting specialist training immediately.	257 (69.6%)
I am thinking of getting specialist training after working as a general practitioner for a while.	87 (23.6%)
I am thinking of attending doctoral and master's programs and improving myself academically.	10 (2.7%)
I do not plan to work as a doctor.	9 (2.5%)
I do not plan to receive specialist training.	6 (1.6%)

*The 5 most common answers are listed

Table 2. Reasons for wanting or not wanting to specialize*

Reason	n (%)
For those who do not want to specialize (n:25)	
Difficulty of the specialty training process	19 (76.0%)
Insufficient financial satisfaction in specialization	18 (72.0%)
Difficulty working conditions in specialization	16 (64.0%)
Mandatory post-specialization service obligation	16 (64.0%)
Greater patient responsibility in the specialization	13 (52.0%)
Existence of the Medical Specialty Exam	11 (44.0%)
For those who want to specialize (n:344)	
Desire to work in a specific branch that would provide professional satisfaction	311 (90.4%)
Better financial means	291 (84.6%)
Status and career expectations	288 (83.7%)
Perception of worthlessness toward a general practitioner	256 (74.4%)
Perception of specialization training as a success indicator	228 (66.3%)
Desire to work in the private sector	172 (50%)
Family, environmental, and/or societal pressure	105 (30.5%)

* More than one option could be chosen

According to Table 1, 25 participants who did not want specialized training were excluded from subsequent analyses, and the specialization preferences of 344 participants were evaluated. Participants were asked about their reasons for wanting or not wanting to specialize, and they were allowed to select multiple options. Table 2 shows the reasons of the participants in order of frequency. The most common reason for those who didn't want to specialize was the difficulty of the assistantship process, while those who wanted to specialize most commonly cited the desire to work in a specific branch that would provide professional satisfaction.

Participants were asked which department they planned to enter after the Medical Specialty Exam if they scored 65 or higher. The top five most desired departments were psychiatry (n:31, 9%), cardiology (n:26, 7.6%), orthopedics (n:23, 6.7%), plastic surgery (n:22, 6.4%), and internal medicine (n:21, 6.1%).

When asked which department they would prefer if they scored 65 or higher, the top three responses were plastic and reconstructive surgery (n:40, 11.6%), dermatology (n:38, 11.0%), and psychiatry/ophthalmology (n:32, 9.3%). In the score range of 45-49.9, the responses were preparing for the exam again (n:269, 78.2%), emergency service (n:28, 8.1%), and obstetrics and gynecology (n:11, 3.2%).

When examined by specialization, it was observed that male participants wanted to prefer surgical medical sciences more than females (p=0.020), those with lower socioeconomic levels wanted to prefer surgical medical sciences more than those with higher levels (p=0.006), and those with a father's education level below 8 years wanted to prefer surgical medical sciences more than those with a father's education level above 8 years (p=0.008). It was observed that academic success, being a Turkish or other country citizen, receiving education in Turkish or English, the education year, the mother's education level, and the presence of a specialist doctor in the immediate vicinity did not affect participants' specialization preferences (Table 3).

In the logistic regression model created, it was determined that being male increases the preference for surgical sciences by 1.6 times. When socioeconomic status was examined, those with low status were found to prefer surgical sciences 4.6 times more than those with moderate status and 2.5 times more than those with high status (Table 4).

Predictive factors for specialization choice were calculated with logistic regression analysis, presented in Table 5. According to the model created, choosing a surgical medical science increases high financial returns by 2.5 times, the desire to spend time for oneself/family by 1.8 times, the low malpractice risk in the specialty branch by 4.5 times, the difficulty of the education process by 1.8 times, and the influence of lessons/internships/instructors by 2.1 times for internal-basic science.

Table 3. Distribution of participants' specialization preferences according to sociodemographic characteristics

Sociodemographic Characteristics		**Basic-Internal Medical Sciences***	**Surgical Medical Sciences***	**p**
Gender	Male	68 (48.6%)	72 (51.4%)	**0.020**
	Female	125 (61.3%)	79 (38.7%)	
Academic success	<80	113 (56.2%)	88 (43.8%)	0.960
	≥80	80 (55.9%)	63 (44.1%)	
Language of education	Turkish	113 (58.5%)	80 (41.5%)	0.302
	English	80 (53.0%)	71 (47.0%)	
Socioeconomic status	Low	16 (39.0%)	25 (61.0%)	**0.006**
	Medium	150 (56.2%)	117 (43.8%)	
	High	27 (75.0%)	9 (25.0%)	
Country	Türkiye	180 (56.8%)	137 (43.2%)	0.505
	Other	13 (48.1%)	14 (51.9%)	
Mother's education level	<8 years	49 (51.6%)	46 (48.4%)	0.296
	≥8 years	144 (57.8%)	105 (42.2%)	
Father's education level	<8 years	19 (38.0%)	31 (62.0%)	**0.008**
	≥8 years	174 (59.2%)	120 (40.8%)	
The year of education	2022	76 (53.5%)	66 (46.5%)	0.418
	2023	117 (57.9%)	85 (41.2%)	
Do you know any specialist?	No	116 (55.8%)	92 (44.2%)	0.877
	Yes	77 (56.6%)	59 (43.4%)	
Total (n:344)		193(56.1%)	151 (43.9%)	

*In analyses, internal medicine sciences included: emergency medicine, forensic medicine, family medicine, child and adolescent psychiatry, pediatrics, dermatology, physical medicine and rehabilitation, infectious diseases, pulmonary diseases, public health, internal medicine, cardiology, neurology, nuclear medicine, radiation oncology, radiology, psychiatry, sports medicine and medical genetics. Surgical medical sciences included; anesthesiology and reanimation, neurosurgery, pediatric surgery, general surgery, thoracic surgery, ophthalmology, gynecology and obstetrics, otorhinolaryngology head and neck surgery, cardiovascular surgery, orthopedics and traumatology, plastic, reconstructive and aesthetic surgery, urology, medical pathology. Basic medical sciences included; anatomy, biochemistry, histology and embryology, pharmacology, physiology, and microbiology.

Table 4. Adjusted OR and 95% CI values for the preference of basic vs. internal medicine/surgical sciences according to participants' sociodemographic characteristics

Variable	**Coefficients**	B.	p	OR	95% C.I.	
					Lower	Upper
The year of education	Ref=[2021-2022] 2022-2023	-0.113	0.624	0.893	0.569	1.402
Gender	Ref=[Female] Male	0.479	0.037	1.615	1.030	2.531
Language of education	Ref=[Turkish] English	0.182	0.422	1.200	0.769	1.871
Socioeconomic status	Ref=[Low]		0.010			
	Medium	-0.602	0.003	4.675	1.717	12.727
	High	-1.542	0.022	2.561	1.144	5.731
Country	Ref=[Türkiye] Other	0.421	0.318	1.523	0.667	3.476
Grade point average	Ref=[≥80] <80	-0.127	0.581	0.881	0.561	1.382

Binary Logistic Regression test, B.: Coefficient, OR: Odds Ratio, CI: Confidence Interval, Ref: Reference Value

Table 5. Adjusted OR and 95% CI values for participants' specialization preferences based on reasons for choosing the branch

Variable	B	p	OR	95% C.I.	
				Lower	Upper
High financial return	-0.952	**0.001**	2.592	1.460	4.602
Desire for self/family time	0.607	**0.047**	1.836	1.008	3.344
Higher patient load	-0.189	0.543	0.827	0.450	1.523
Low malpractice risk in the specialty	1.524	**<0.001**	4.592	2.314	9.115
Incidents of violence against physicians	-0.452	0.200	0.636	0.319	1.270
Difficulty of the education process	0.612	**0.047**	1.845	1.009	3.373
Duration of assistant education in the specialty	-0.381	0.263	0.683	0.351	1.331
Influence of lessons/internships/instructors	0.784	**0.002**	2.190	1.320	3.631

Binary Logistic Regression test, OR: Odds Ratio, CI: Confidence Interval, B: Coefficient

Discussion

In our country, graduates of medical faculties are defined as general practitioners. General practitioners work in primary health services such as emergency services, family health centers, community health centers, and health directorates due to the flexibility in their job descriptions. Due to the flexibility in the job descriptions of general practitioners in our country, reassignments and changes of location can frequently occur. Physicians who wish to do so can specialize in a certain branch by taking the Medical Specialty Exam according to their preferences.

Expectations and desires of those undergoing education in the medical branch vary according to the changing conditions of our country and the world. Trends towards different preferences have been observed in the literature at different times. However, in many studies conducted in our country, it has been observed that the majority of students mostly want to specialize in a specific branch. In our study, the most common reason for those who don't want to specialize is found to be the difficulty of specialization training. Conversely, in line with the literature, in our study, 93.2% of the students want to specialize in a branch. In a study conducted in Istanbul in 2021, 96.7% of the students wanted to specialize, while in another similar study conducted at Akdeniz University in 2017, this rate was found to be 92.9%.[5,12] When asked about the reasons for the preferences of students who want to specialize, different answers have been given. In a study conducted by Dikici et al. in 2008, material gain and prestige were prominent in choosing a specialized branch. In a study conducted by Tekin et al. in 2013, material gain and career opportunities were prominent, while in a study conducted by Açıkgöz et al. in 2019, the desire to work in a specific branch that would provide professional satisfaction was found to be effective.[4,11,13] In our study, in line with the literature, the desire to work in a branch that would provide professional satisfaction was the most preferred answer among the reasons for wanting to specialize. It is estimated that the desire of physicians to specialize in a branch is due to the perceived inadequacy of general practitioner work in terms of prestige. Preventive health services, the most important step in health services, fall within the scope of primary health services.[14] The preference of the majority of physicians to specialize may lead to a disruption in primary health services over time.

In this study, the most preferred specialization areas were found to be psychiatry, cardiology, and orthopedics. In a study published by Açıkgöz et al. in 2019, the most preferred areas were pediatrics, obstetrics and gynecology, and psychiatry; in a study conducted by Yapalak et al. in Istanbul in 2021, internal medicine, ophthalmology, and pediatrics were found to be the most preferred; and in a study conducted by Kara et al. in 2014, ear, nose, and throat, dermatology, and internal medicine were found to be the most preferred.[4,12,15]

In the conducted study, it was found that the scores expected to be obtained in the Medical Specialty Exam are effective in students' specialization choices.[5,16] In our study, when the scores were categorized and asked, it

was found that the preferred departments differed according to the score obtained. This situation indicates that intern doctors may change their preferences according to their Medical Specialty Exam scores. No other study categorizing scores and questioning the desired department was found in the literature. In addition, it is noteworthy that the majority of responding physicians in our study stated that they wanted to retake the Medical Specialty Exam if they received low scores.

In the literature, it is found that in studies conducted, our results are consistent with the effect of the male gender on choosing a surgical medical science.[17-19] It is estimated that this situation is due to societal gender perceptions and gender roles imposed by society. While the female gender is influenced by gender roles to prefer specialty branches with fewer night shifts, the male gender tends to choose surgical medical sciences with more demanding working conditions and longer hours.

In a study conducted in Brazil, it was found that socioeconomic factors affect specialty branch selection, which supports our study.[20] In two studies conducted in our country in 2011 by Ergin et al. and in 2017 by Tengiz et al., unlike our study, it was found that socioeconomic factors did not affect branch selection.[16,21] It is estimated that this difference in results may be due to the economic difficulties that our country and the world have experienced in recent years.

In our study, it was found that violence against physicians did not affect branch selection. In a study conducted on assistant physicians by Bayrakçı et al., it was found that violence was effective in branch selection.[22] It is thought that this difference is due to changes in ideas as a result of starting professional life and getting to know the environment.

In the study conducted by Açıkgöz et al., it was found that high financial return, spending time for oneself/family, low malpractice risk, and the influence of internships/instructors affect branch selection in a way that supports our study.[4] In a study conducted on assistant physicians, malpractice risk was a leading reason for branch selection.[22] Similarly, in a systematic review conducted by Cansever et al. in 2020, it was found that high financial return, spending time for oneself/family, and malpractice risk were the most effective factors in specialty branch preference, as in our study.[3]

In a thesis study conducted by Arslan in 2019, it was found that the difficulty of the specialization education process increases the preference for internal medicine branches.[23] This result is supportive of our study. The intensive workload and time-consuming education process in surgical branches are seen to affect preferences.

Understanding why medical students choose their specialization areas is important for those determining public health and education policies. The distribution of physicians' specialization areas according to the needs of societies is a fundamental issue for sustainable human resources.

Improving the economic conditions of physicians, minimizing malpractice risks, and improving education conditions while achieving work/life balance are the most important topics that need to be developed for the successful delivery of health services to the public.

Ethical Considerations: For the study, ethics committee approval was received from Ankara Yıldırım Beyazıt University Health Sciences Ethics Committee with decision number 07.04.2022-06 with research code 2022-810.

Conflict of Interest: The authors declare no conflict of interest.

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