Factors Influencing the Choice of Pediatric Surgery as a Medical Career Among Turkish Pediatric Surgeons and Residents

Türk Çocuk Cerrahları ve Asistanlar Arasında Çocuk Cerrahisinin Tıbbi Kariyer Olarak Seçimini Etkileyen Faktörler

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ABSTRACT Objective: Each medical specialty has its own reasons to be selected as a career by medical doctors. The aim of this study was to identify the main reasons to select pediatric surgery as a medical career among Turkish pediatric surgeons and residents. **Material and Methods:** Data of this cross-sectional survey were collected from pediatric surgeons and residents, based on a self-administrated questionnaire during 23rd National Congress of Pediatric Surgery in September 2005. The questionnaire included demographic variables (sex, gender, academic affiliation) and 13 possible influence factors which were marked on a 7 point semantic differentiation scale (3= strong negative influence, 0= no influence, +3= strong positive influence). **Results:** Eigthy-seven pediatric surgeons and residents participated in the survey. Three strong positive reasons (opportunity to perform surgery, working with children, and expected emotional satisfaction), one moderate reason (ability to appraisal of own skills and aptitude), and two minor positive reasons (expected academic opportunities and a teacher as a role model) were identified to select pediatric surgery as a medical career. **Conclusion:** Our findings may be used for the early identification and support of doctors who will become pediatric surgeons in Turkey.

Key Words: Career choice; specialties, medical; attitude of health personnel; health manpower

ÖZET Amaç: Tıpta uzmanlık alanlarının, tıp doktorları tarafından kariyer olarak seçilmek için kendine özgü nedenleri vardır. Bu çalışmada, Türkiye'deki çocuk cerrahisi uzmanları ve asistanlarının uzmanlık kariyer alanı olarak çocuk cerrahisini seçmelerindeki temel nedenlerin ortaya konması amaçlandı. **Gereç ve Yöntemler:** Kesitsel tanımlayıcı tipteki araştırmanın verileri Eylül 2005'te yapılan 23. Ulusal Çocuk Cerrahisi Kongresi'nde anketin dağıt-topla yöntemi ile uygulanması ile toplandı. Cinsiyet, yaş ve akademik düzey gibi bağımsız değişkenlerin yer aldığı ankette, katılımcılar kariyer seçimini etkileyebilecek 13 gerekçeyi, 7'li semantik anlam farklılığı ölçeği ile (-3= kesinlikle olumsuz etki, 0= etkisiz, +3= kesinlikle olumlu etki) değerlendirdi. **Bulgular:** Araştırmaya 87 çocuk cerrahı ve asistanı katıldı. Çocuk cerrahisini bir kariyer olarak seçme konusunda üç güçlü (cerrahi uygulama olanağı, çocuklarla çalışma ve manevi doyum beklentisi), bir orta düzeyde neden (kendi beceri ve yeteneklerine uygunluk / kullanabilme) ve iki zayıf neden (akademik beklenti ve rol model alınan bir eğitici) saptandı. **Sonuç:** Bulgularımızın Türkiye'de çocuk cerrahı olacak doktorların erken dönemde saptanması ve desteklenmesinde kullanılabilir.

Anahtar Kelimeler: Kariyer seçimi; uzmanlıklar,tıbbi; sağlık personelinin tutumu; sağlık insangücü

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Planning the medical workforce has been a recurrent theme in the world for decades. Knowing how many "doctors", in which area, will be available in the future, and trends in career choice among medi-

cal students, have several implications for workforce policy and medical education. For instance, recent findings show that non-generalist, hospital medicine is becoming more popular among medical graduates.[1] Indeed, there is a common understanding that choice of medical specialty by a doctor is a multi-factorial process and is largely determined in the years following graduation.[2-4]

Since the early 70s, we have seen many authors' works on understanding this multi-factorial process and decision timing among medical students, graduates, residents and practicing physicians.[5] Most of the studies come from North America, Australia and the UK. Several models, assumptions and classifications were subject to use in these studies. The most prevalent studies use Self-determination Theory [6] and Decision Theory[5] to identify these factors influencing the "doctors' choice". In another example, a comprehensive Australian survey aimed to identify factors influencing the choice of specialty of medical graduates using an Intrinsic & Extrinsic Factors Classification.[4] The intrinsic factors included personal attributes while the extrinsic factors comprised of work environment and local circumstances.

On the other hand, there are only a few studies dealing with the "doctors' choice" in pediatric surgery. Our limited thematic PubMed review, using keywords including "career choice" or "career preference" or "career plans" or "career trends" or "career decision-making" or "specialty choice" or "choice of specialty" and "medical students" or "medical doctors" or "physicians" and "pediatric surgery", for the pediatric surgery domain, turned up only eight articles out of the over 3100 for other specialties and graduates since 1963.[7,8] In particular, there has been no study published in the journal researching why doctors choose a certain specialty in Turkey.

Recently, the Society of Turkish Pediatric Surgeons has been conducting an ongoing multi-phase project called "The Past, Present and Future of Pediatric Surgery in Turkey", which aims to discover facts, opinions and trends which are useful for future planning.

In the framework of this three-year project, a historical analysis of the discipline, a survey of practicing pediatric surgeons on career choice and job satisfaction, an inventory of the staff, the resources, the patient profile and the future plans of pediatric surgery departments, and a career choice survey of Turkish medical students to identify the place of pediatric surgery were conducted. As a part of the "Present" perspective, this study mainly aims to identify factors influencing the career choice of practicing Turkish pediatric surgeons and residents.

MATERIAL AND METHODS

A self-administrated questionnaire-based cross-sectional survey of Turkish pediatric surgeons was used to answer research questions.

The questionnaire was distributed to all participants of the 23rd National Congress of Pediatric Surgery in September 2005 who agreed to be involved in the study (87 persons) and was collected at the end of the congress. The number of congress participants was 235. Based on the database of Turkish pediatric surgeons, the study covers approximately one third of Turkish pediatric surgeons and residents.

The content and the design of the questionnaire were informed by similar national and international survey questionnaires and a thematic review of the literature. The questionnaire consisted of 8 demographic variables and a set of career choice questions (13 factors asked on a semantic differentiation scale). For the development of the questionnaire, we revealed and pooled 18 usable factors from the career choice aspects of similar surveys. The pool consisted of 8 independent intrinsic factors as sex, age, residency place, monthly income, workplace and academic affiliation. The remaining 12 consisted of two dependent intrinsic factors (personal interest and consistency with own skills and ability) and 10 dependent extrinsic factors such as expected financial satisfaction, working conditions, and expected emotional satisfaction.

Turkey has had a centrally administered competitive examination system for residency selection and placement, composed of multiple-choice questions,

since the 1980s. All the examinees are required to list their preferences prior to taking the test. However, this may sometimes result in being matched to one of their "preferred" programs "by chance".

The examinee's chance is primarily influenced by the number of available positions for a given program, and the number of examinees including that specific program in their list of preferences. For this reason, we added the "chance factor" as a nation-specific original factor and the "other" factor for identifying other possible unforeseen factors.

Using a semantic differentiation scale (-3= strong negative influence, 0= no influence, +3= strong positive influence) we asked surgeons to rate each item according to their own experience.

In order to answer the research question, we performed a two step statistical procedure. Using SPSS 11.5 package for Windows, we calculated the frequency distributions, means and medians of each factor. Although all the central tendency measures can be used to assign meaning to each item of such semantic differentiation scales, we chose to use the median value. In the second step, we looked at the effects of the independent variables on each factor using Kruskal-Wallis Chi Square and Mann-Whitney U tests. Our results are presented in two tables (descriptive findings and statistical analysis) and discussed in the text.

RESULTS

Seventy of the respondents were male while 16 were female. One responder did not answer the gender question. The mean age was 39 ± 9 (min. 26 and max. 58) and the group consisted of 17 residents, 26 pediatric surgeons, 16 professors, 16 associate and 12 assistant professors. The respondents had graduated from 19 different medical faculties. Seventy-two pediatric surgeons were completing their residency program at a university hospital while 11 had done so at a state hospital. Four surgeons did not answer the question. All the respondents were working in 28 cities throughout Turkey. While 69 surgeons were working in the public sector, 17 respondents had a part time or full time private practice. One surgeon did not answer the question. Seven respondents did not answer the income question. For the rest of the group, the average monthly income was 3.123 ± 1.554 TRY (2.300 ± 1.100 USD). The monthly income levels varied between 750-7.500 USD (Table 1).

According to the central tendency measures of each factor, as shown in Table 1, the career preference of Turkish pediatric surgeons and residents is strongly positively influenced (median+3.00) by the "opportunity to perform surgery" (mean 2.56 ± 0.8), "expected emotional satisfaction" (mean 2.45 ± 0.9) and "working with children" factors (mean 2.45 ± 0.9). On the other hand, their choice is moderately positively influenced (median + 2.00) by the "appraisal of own skills and aptitude" factor (mean 2.06 ± 1.0), while the "expected academic opportunities" and "a teacher as role model" factors have a minor positive influence (median + 1.00 and means 1.11 ± 1.5 and 0.82 ± 1.7 respectively). The other remaining factors had no positive or negative influence (0.00) on their choices (Table 2).

The analysis of significant differences of the factors' rating scores for the independent variables showed us that in the process of selecting pediatric surgery as a medical career;

a) The "perceived consistency with the skills and abilities of the respondents" (Mann Whitney U= 287.0 p= 0.004) and "perceived image of the discipline as a nationally well- developed one" (Mann Whitney U= 285.0 p= 0.004) factors are more important for the female surgeons and residents than the males,

b) "Expectation of a balanced professional and private life" is more important for males (Mann Whitney U= 294.0 p= 0.005),

c) If the residency took or is taking place at a university setting, respondents' decision to be a pediatric surgeon is more influenced by the "working with the children" factor (Mann Whitney U= 262.5 p= 0.018),

d) The choice of current residents is more influenced by their own perception of the "development level of the discipline" (Kruskal-Wallis Chi-square=10.201 p=0.037).

TABLE 1: Central tendency measures of the factors influencing doctors' choice to be a pediatric surgeon.

		Frequency distribution (%)											
Items	No	-3 strong negative influence	-2 moderate negative influence	-1 minor negative influence	0 No influence	+1 minor positive influence	+2 moderate positive influence	+3 strong positive influence	Min.	Max.	Mean	S.D	Median
Opportunity to perform surgery	84	0.0	0.0	0.0	3.6	4.8	23.8	67.9	0	3	2.56	0.8	3.0
Expected emotional satisfaction	82	0.0	0.0	2.4	1.2	6.1	29.3	61.0	-1	3	2.45	0.9	3.0
Working with children	84	0.0	0.0	0.0	4.8	13.1	31.0	51.2	0	3	2.29	0.9	3.0
Appraisal of own skills and aptitude	81	0.0	0.0	0.0	9.9	12.3	39.5	38.3	0	3	2.06	1.0	2.0
Expected academic opportunities	82	3.7	1.2	0.0	36.6	22.0	7.3	29.3	-3	3	1.11	1.5	1.0
A teacher as a role model	85	9.4	0.0	1.2	35.3	14.1	22.4	17.6	-3	3	0.82	1.7	1.0
Being a nationally well developed discipline	81	11.1	2.5	3.7	39.5	19.8	14.8	8.6	-3	3	0.33	1.6	0.0
Expected good working conditions	83	13.3	8.4	13.3	25.3	19.3	13.3	7.2	-3	3	-0.02	1.8	0.0
Expected financial satisfaction	80	15.0	6.3	3.8	55.0	11.3	8.0	0.0	-3	3	-0.05	1.6	0.0
Chance	78	16.7	1.3	2.6	48.7	17.9	6.4	6.4	-3	3	-0.15	1.7	0.0
A close friend as a role model	81	18.5	1.2	1.2	55.6	9.9	6.2	7.4	-3	2	-0.33	1.4	0.0
Expectation of a balanced professional and private life	82	24.4	4.9	4.9	39.0	12.2	7.3	7.3	-3	3	-0.39	1.8	0.0
Family wishes	82	26.8	3.7	4.9	61.0	1.2	0.0	2.4	-3	3	-0.84	1.5	0.0

TABLE 2: Analysis of significant difference of factors' rating scores.

	Sex		Age		Residency Place		Current Academic Position		Workplace		Monthly Income	
	U*	P	(df 29)	p	U*	p	(df 4)	p	(df 4)	p	(df 23)	p
Expected emotional satisfaction	414.0	0.144	38.982	0.102	315.0	0.111	6.322	0.176	1.052	0,902	16,338	0,840
Opportunity to perform surgery	484.0	0.466	35.897	0.177	377.5	0.396	4.175	0.383	4,806	0,308	19,336	0,624
Working with children	435.5	0.335	25.235	0.666	262.5	0.018***	1.208	0.877	3,847	0,427	16,138	0,849
Appraisal of own skills and aptitude	287.0	0.004***	31.950	0.322	283.5	0.136	3.392	0.494	,613	0,962	22,312	0,441
Expected academic opportunities	385.5	0.095	31.068	0.362	297.0	0.092	3.021	0.554	1,754	0,781	25,621	0,268
A teacher as a role model	515.0	0.732	32.078	0.316	418.0	0.794	2.446	0.654	2,341	0,673	19,128	0,694
Being a nationally well developed discipline	285.0	0.004***	33.641	0.253	387.5	0.714	10.201	0.037***	2,407	0,661	25,622	0,319
Expected good working conditions	377.5	0.074	35.318	0.194	400.0	0.732	4.019	0.404	3,107	0,540	18,974	0,703
Expected financial satisfaction	503.5	0.995	38.812	0.084	297.5	0.102	8.500	0.075	2,103	0,717	25,510	0,273
Family wishes	517.5	0.973	29.986	0.415	334.0	0.194	5.337	0.254	3,181	0,528	22,742	0,416
Chance	440.5	0.994	37.298	0.139	305.5	0.180	6.897	0.141	4,835	0,305	18,771	0,600
A close friend as a role model	469.5	0.806	40.466	0.077	360.0	0.428	6.051	0.195	5,572	0,233	24,556	0,267
Expectation of a balanced professional and private life	294.0	0.005***	31.554	0.340	381.0	0.594	0.894	0.925	0,583	0,965	22,550	0,428

* Mann-Whitney U score, ** Kruskal- Wallis Chi-square, ***Significant at p<0.05 level.

DISCUSSION

As part of the Turkish Pediatric Surgery Society's effort to plan for the future of pediatric surgery in Turkey, we surveyed the factors influencing career choice of practicing Turkish pediatric surgeons and residents at 23rd National Congress. Unfortunately, there is no report specifically about pediatric surgery in the literature with which we can compare our findings.

Two general surveys in the United Kingdom identified "appraisal of own skills and aptitudes", "enthusiasm for or commitment to the specialty", "domestic circumstances", "hours and working conditions", and "experience of jobs in training", as the factors having the greatest influence on the career choices of doctors.[9,10] These surveys also revealed differences between male and female doctors in the weighting ascribed to each of these factors.

In our study we found that the surgical nature of the discipline had a major influence on the choice of surgeons and residents to be a pediatric surgeon. Expected emotional satisfaction and working with children are the other strongest influential factors. As in the UK survey, we identified appraisal of own skills and aptitude as a moderately influential factor. All the other factors listed in our questionnaire have either a minor positive influence or no influence on the choice of doctors to become a pediatric surgeon. No negative influential factor was identified.

CONCLUSION

In conclusion, we believe that our findings may be used for the early identification and support of the doctors who will become pediatric surgeons and have further comparative research implications.

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