

The Driving Factors Important for Evaluation Student's Opinion which Influenced Decision Making of Career Choice: Pediatrics as a Career Choice as an Example

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doi: 10.5455/aim.2021.29.94-98

ACTA INFORM MED. 2021 JUN 29(2): 94-98

Received: Mar 02, 2021

Accepted: May 17, 2021

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ABSTRACT

Background: Reducing the maternal and neonatal mortality rate are the predominant goals of achieving sustainable development for which it is important to ensure adequate health workforce, especially pediatric professionals at all levels of health care. Recent trends reveal a significant decline in the number of doctors opting for pediatrics specialization. **Objective:** This study was carried out to explore the career preferences of the undergraduate medical students and factors influencing career choice. **Methods:** This cross sectional study was carried out among 362 undergraduate medical students studying in prefinal and final year during a period of three months. A self administered questionnaire was used to obtain information regarding the career preferences and factors influencing the decision making. Attitudes regarding career choice was assessed using Likert scale and later recoded into binomial variables. Statistical analysis was carried out using SPSS software. **Results:** Majority of the participants were females (61.8%). The individual choice of specialty revealed that 12.2% of the males and 18.5% of the females wanted to take up pediatrics as their first career choice while 5.5% of the males and 7.7% of the females had pediatrics as their second choice. Overall, more females preferred pediatrics as a career choice compared to the males. The observed difference was statistically significant ($p < 0.0001$). **Conclusion:** Adequate motivation, driven with passion for patient care can be inculcated at the young age and will go a long way in not only addressing the pediatric needs of the society, but also improve health indicators and sustainable development of the country.

Keywords: Career choice, medical education, pediatrics, neonatal mortality.

1. INTRODUCTION

A country's progress is principally determined on not only the size of its economy, but also on the health and quality of life of its population. In any country, the quality of maternal and child health has been traditionally used as an indicator of the health status. The recently framed sustainable development goals by the United Nations in 2015 also directed countries to reduce the maternal mortality ratio to less than 70 per 100,000 live births, neonatal mortality to less than 12 per 1000 live births, and under five mortality to less than 25 per 1000 live births by the year 2030 (1). The key challenges involved in realizing these goals are related to the availability of trained manpower at all levels of health care, specifically pediatricians.

This scenario is alarming in developing countries like India, where the population density is high and accessibility to affordable healthcare is low. The High Level Expert Group (HLEG) for Universal Health Coverage (UHC) formulated by the Planning Commission in India recommended a minimum doctor population ratio of 1:1000 and one pediatrician for 10,000 population. However, data from Indian Academy of Pediatricians reveal that only 23,000 pediatricians are available in the country as on 2013 (2). Studies have shown that most of these specialists are concentrated from the community health care level (district level) onwards and most of the rural primary health care is devoid of the specialist services (2). This situation is a direct reflection of the inter-

woven challenges existing in the medical education system in India.

Medical education is the gateway for health workforce. The country has witnessed rampant rise in the number of medical colleges in the recent years, with around 350 medical colleges generating 45,000 graduate medical doctors every year. Despite the volume of workforce generated, the shortage of specialists at the point of care continues to persist. Several factors are responsible for this paradoxical situation in India. Choosing a specialization Programme is possible only after completing the four-and-a-half years undergraduate training followed by a compulsory internship in a hospital. These foundation years of rigorous medical training provides an insight into the likely choice of specialization for an undergraduate medical student and based on their competency, these doctors undergo training in a specific field during postgraduation. The mode of admission to these specialty programs had undergone significant changes over the past several years (3). Therefore, it is worthwhile noting that the students have limited scope for making preferred choice of specialization. It is presumed that undergraduates do not make their career choices until after they have graduated from their medical school. The insights and career predilections of an Indian medical graduate are not fully understood.

When the population places huge demand on the services of specialists, especially pediatricians, it is important to not only orient the undergraduate medical students to pediatrics at the knowledge level, but also explore the other intrinsic or extrinsic factors which could influence the decision of becoming a pediatrician. This requires an in-depth understanding of the knowledge, perceptions and beliefs which surround career choices of the undergraduate students to take up pediatrics as a specialization program at postgraduation level and pursue it as a career choice. Very few studies have been carried out to explore this dimension of medical education and the present study was conducted to develop insights in this aspect. The results of this study is expected to make significant modifications in the medical education to accommodate need-based curriculum, not only to deliver the healthcare requirements but also produce competent, passion driven specialists, especially pediatricians who will eventually take care of sustainable development of the nation.

2. OBJECTIVES

This study was carried out: a) to identify the career preferences of undergraduate medical students, and b) to evaluate the factors that influence decision making of career choice.

3. METHODOLOGY

Study setting and participants

This study was carried out as cross-sectional study by the Department of Pediatrics among the undergraduate medical students of a private medical college situated in Chennai for a period of three months between July and September 2015. All the undergraduate students belonging to pre-final and final year of Bachelor of Medicine and Bachelor of Surgery (MBBS) program during the study period were selected for

the study. A total of 410 medical students were studying in prefinal and final year during the study period of which 48 participants did not complete the questionnaire. Therefore, data pertaining to 362 participants were taken for analysis.

Ethical approval and informed consent

Approval was obtained from the Institutional Ethics Committee prior to the commencement of the study. All the participants were explained in detail about the study and informed consent was obtained prior to the data collection.

Data collection

A structured self-administered questionnaire was used for data collection, adapted from Artino et al. (4). The items for the questionnaire were based on a study by Abu-Laban RB et al. (5). Demographic information such as gender, age, place of childhood upbringing, presence of doctors among the family members and encounter with a doctor as a role model were recorded. Data regarding future career plans in specialty choice was documented. Questionnaire also contained items related to the attitude of career choice and each item was scored on a 4-point Likert scale. (4- extremely, 3- fairly well, 2- not particularly, 1-not at all). Later, the responses corresponding to 'extremely' and 'fairly well' were grouped as 'present' and the remaining responses were coded as 'absent'

Data analysis

Data was entered and analysed using SPSS software ver. 21. The descriptive data was presented as percentages. The differences between the responses to career choice and demographic characteristics were analysed using chi square test. A p value <0.05 was considered statistically significant.

4. RESULTS

The number of students studying in pre final and final year of the undergraduate medical program (MBBS) in the medical college during the study period was 410. Out of this, 48 (11%) of the students did not complete the questionnaire and were lost to follow up. The results of the study pertain to a total of 362 participants belonging to pre final and final year. Among the study participants, majority belonged to final year (56.3%) and were females (61.8%). Most of the students belonged to metropolitan cities (55.2%).

The exposure to medical education in the family level was ascertained. It was observed that only 41.5% of the participants had doctors amongst their family members. Moreover, 52.5% of the participants did not have any role model in their personal life in the field of medical practice (Table 1).

In this study, majority of the participants (86.7%) wanted to take up clinical practice as their career while 1.9% wanted to take up public health specialization. The most common factor which influenced in the career choice was the characteristics of the specialty (80.1%) followed by future scope in career (65.7%) (Table 2).

The individual choice of specialty (gender wise) revealed that 12.2% of the males and 18.5% of the females wanted to take up pediatrics as their first career choice while 5.5% of the males and 7.7% of the females had pediatrics as their second choice. Overall, more females preferred pediatrics as a career choice compared to the males. The observed difference was statistically significant ($p < 0.0001$) (Figure 1).

On comparing the choice of specialty with respect to the

S. No	Characteristics	Frequency (n=362)	Percentage (%)
1	Year of study		
	Pre-final year	158	43.7
	Final year	204	56.3
2	Gender		
	Males	138	38.2
	Females	224	61.8
3	Place of origin		
	Metropolitan cities	200	55.2
	Mid-size and small cities	140	38.7
4	Doctors among family members		
	Present	150	41.5
	Absent	212	58.5
5	Role model in the field of medical practice		
	Present	172	47.5
	Absent	190	52.5

Table 1. Demographic characteristics of the study participants:

year of study, more participants in the prefinal year (16.9%) preferred pediatrics as a first choice compared to 13.8% in the final year. However, 7.2% of the final year participants had pediatrics as a second choice compared to 6.1% in the prefinal year. The observed difference was statistically significant ($p < 0.0001$) (Figure 2).

Among the various intrinsic characteristics of the specialty which influenced the decision making, the amount of clinical work involved was the most important factor (61.4%) followed by need for mastering the specialty (60%).

Among the socioeconomic factors responsible for decision making, command for social respect was a predominant factor (57.6%) followed by influence of future reforms (45.4%), job availability (44.4%) and monetary benefits (43.4%).

Among the various personal factors responsible for decision making analyzed, it was observed that aptitude for the specialty (59%), job satisfaction (58.5%) and intellectual challenges (55.9%) were the most important driving factors in career choice.

On summing up the overall influencing factors, it was observed that characteristics of the specialty (80.1%) and future scope in the career (65.7%) were the most important factors followed by opinions of peers, parents and experts (41.4%).

The role of gender in influencing the career choice was analyzed. Majority of the participants who chose clinical medicine were females (61.9%) compared to males (38.1%). Similarly, majority of the participants who chose public health were females (85.7%) compared to males (14.3%). In all the fields of career options, females were more compared to the males and the observed difference was statistically significant ($p < 0.0001$).

On evaluating the role of gender on the factors influencing the decision making, the characteristics of the specialty influ-

S. No	Career choice characteristics	Frequency (n=362)	Percentage (%)
1	Type of career preferred		
	Clinical practice	314	86.7
	Basic medical specialty	5	1.4
	Public health specialty	7	1.9
	Medical professional in government hospitals	4	1.1
	Others (including super-specialty teaching, etc)	2	0.6
2	Reasons		
	Undecided	30	8.3
	Characteristics of the specialty	290	80.1
	Personal reasons	138	38.1
	Opinions of peers, parents and experts	150	41.4
	Future scope in career	238	65.7
	Others		
		196	54.1

Table 2. Career choice among the study participants:

enced more females (68.9%) compared to males (31.1%) and this difference was statistically significant ($p < 0.0001$). Similarly, future scope in the career influenced more females (65.6%) compared to males (34.4%) and the observed difference was statistically significant ($p < 0.05$) (Table 3). The analysis of the role of year of study revealed that characteristics of the specialty influenced the final year participants (50.4%) compared to prefinal year participants. The observed difference was statistically significant ($p < 0.0001$). Similarly, future scope of the career significantly was high among final year participants (52.1%) compared to the prefinal year participants ($p < 0.05$) (Table 4).

S. No	Factors	N	Gender n(%)		Chi sq	P value
			Male	Female		
1	Characteristics of the specialty					
	Present	290	90(31.1)	200(68.9)	31	0.0001*
	Absent	72	48(66.6)	24(33.4)		
Personal reasons						
2	Present	138	58(42.1)	80(57.9)	1.4	0.236
	Absent	224	80(35.7)	144(64.3)		
	Opinions of peers					
3	Present	150	60(40.0)	90(60.0)	0.4	0.527
	Absent	212	78(36.8)	134(63.2)		
	Future scope in career					
4	Present	238	82(34.4)	156(65.6)	3.9	0.048*
	Absent	124	56(45.2)	68(54.8)		
	Others					
5	Present	196	84(42.8)	112(57.2)	4.06	0.043*
	Absent	166	54(32.5)	112(67.5)		
	Type of career choice					
6	Clinical medicine	314	110 (38.1)	204 (61.9)	28.1	0.0001*
	Basic medicine specialist	5	1 (20)	4 (80)		
	Public health	7	1(14.3)	6 (85.7)		
	Government infrastructure	4	0(0)	4 (100)		
	Other options	2	0 (0)	2 (100)		
	Undecided	30	24 (80)	6 (20)		

Table 3. Role of gender in influencing the factors for career choice:

S. No	Factors	N	Year of study n(%)		Chi sq	P value
			Pre-final	Final		
1	Characteristics of the specialty				21.4	0.0001*
	Present	290	144(49.6)	146(50.4)		
	Absent	72	14(19.4)	58(80.5)		
2	Personal reasons				0.14	0.905
	Present	138	62(44.9)	76(55.1)		
	Absent	224	96(42.8)	128(57.2)		
3	Opinions of peers				2.4	0.121
	Present	150	58(38.7)	92(61.3)		
	Absent	212	100(47.2)	112(52.8)		
4	Future scope in career				5.1	0.023*
	Present	238	114(47.9)	124(52.1)		
	Absent	124	44(35.5)	80(64.5)		
5	Others				0.009	0.976
	Present	196	86(43.8)	110(56.2)		
	Absent	166	72(43.4)	94(56.6)		

Table 4. Role of year of study in influencing the factors for career choice: *statistically significant

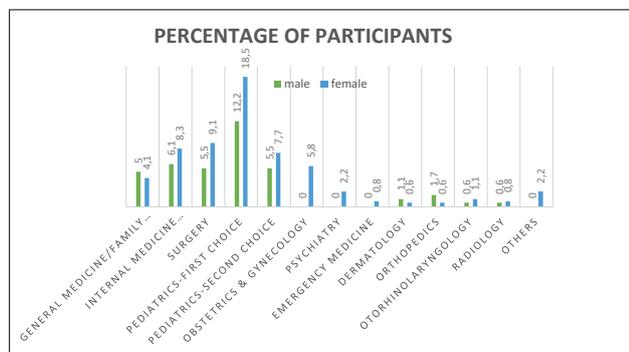


Figure 1. Percentage of participants in the study by sex

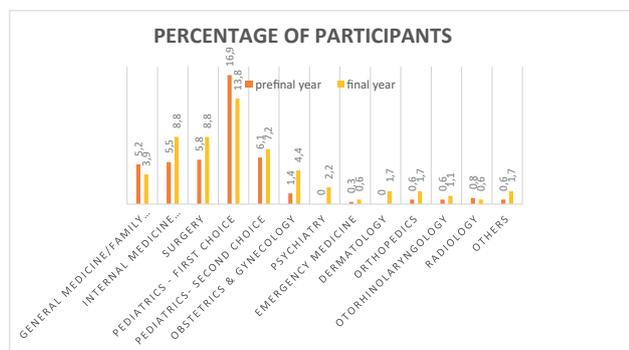


Figure 2. Percentage of participants in the study by school year of the study

5. DISCUSSION

The primary goal of a country's development is to sustain with low rates of maternal and neonatal mortality. This is feasible only if there are trained and skilled professionals providing specialized care at all levels of health care. Studies reveal a significant decline in the proportion of medical graduates opting for Pediatrics as their specialization (6, 7). Therefore, the need of the hour is to explore the factors which influence career choice among undergraduate students so as to facilitate informed decision making for the benefit of the country.

The present study was conducted among 362 participants, out of 410 students in the pre-final and final year of the MBBS program. An overall 11% non-response observed

in this study. Majority of the participants were females (61.8%) and were from large metropolitan cities. This finding is inevitable considering the location of the medical college in one of the largest metropolitan cities in India. About 41.5% of the participants had doctors amongst their family members, similar to the study done by Ie et al. (8). Almost 47.5 % based their career choice on a role model, in a study done on Japanese medical graduates on career preferences, career choice based on role model was excluded as it correlated with 2 factors to the same extent during factor analysis (9). This increase can be attributed to good teaching faculty with vast clinical experience and our centre is one of the pioneer institutes of south India.

In this study, 73% of the participants were undecided regarding their career preference, out of which 80% were males ($p < 0.05$) and were in final year of the medical course ($p < 0.05$). Apart from this, a majority of the participants chose clinical practice as their career of choice (86.7%). The most preferred specialties were pediatrics and surgery of which a significant number of participants chose pediatrics as a second career option after surgery (13.3%). Similarly, pediatrics was a preferred career option for female students compared to the male counterparts ($p < 0.0001$) and more students in the final year opted for pediatrics for specialization ($p < 0.0001$). This finding is akin to previous studies which stated fewer female role models in other specialties compared to pediatrics which had many female pediatricians (10-14).

An analysis of the determinants of career choice was made and it was observed that the intrinsic characteristics of the specialty and future scope of the specialty were the main domains influencing surgery. This finding was similar to a study done by Takeda et al in which characteristics of the specialty was the most important factor influencing surgery as career choice (9). In addition, the study participants also felt that the need for becoming an authority in the specialty was another main factor influencing the choice of pediatrics. Furthermore, good working atmosphere, supportive colleagues, positive experience during student life and the enthusiasm/commitment of teachers and experts in the field of pediatrics were also key factors influencing pediatrics as career choice (15).

Considering the prevailing scenario, there is a need for improving the awareness regarding the importance of taking up Pediatrics as a career option among the undergraduate medical students. This can be carried out by enabling an informed decision making through improving their participation in bedside clinics and encouraging interaction with the patient groups. Moreover, the existing advantages in the life of a Pediatrician in socioeconomic and personal front should also be highlighted by conducting mentor-mentee career specific interactive sessions at the undergraduate level so as to impart further insights in the minds of young doctors (15).

6. CONCLUSION

The present study has highlighted the perceptions of undergraduate medical students regarding their career choices and factors influencing the decision making. The study has also given an insight on the role of clinical exposure, personal, social and economic factors which could influence the decision-making process. At the level of constructing medical curriculum, it is important to give adequate focus on career counseling and practical interactive sessions with seniors and experts from the field of Pediatrics will enable the young professionals make informed choice regarding their career. Adequate motivation, driven with passion for patient care can be inculcated at the young age and will go a long way in not only addressing the pediatric needs of the society, but also improve health indicators and sustainable development of the country.

Limitations of the study

Since this study was carried out as an opinion-based study on the career preferences, the scope for determining definitive career choices was limited. Further, the participants were not followed up to decipher the actual career choices made by them. Also, if the study participants had also included resident interns, the role of practical exposure to bedside pediatric care could have influenced the career choices. However, this was not done due to feasibility issues.

Future directions

A Longitudinal data is necessary to analyze the intra individual differences in career preferences and the endurance of choice among the undergraduates. Further, monitoring these students till they attain their conclusive career, will give an idea of whether the factors used for analyzing the career choice can predict the definite choice of specialty. There is a need for career orientation program to be integrated into the undergraduate curriculum for the students to choose their career.

- **Patient Consent Form:** All participants were informed about subject of the study.
- **Author's contribution:** AS, PA, RM, PNV involved in conception and design of the study, AS, PA, PP, RS, ST, SR involved in acquisition, analysis and interpretation of data for the study and PNV involved in drafting the article and revising it critically for important intellectual content and final approval of the manuscript to be published.
- **Conflicts of interest:** There are no conflicts of interest.
- **Financial support and sponsorship:** None.

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