



Planning a Medical Career: Analysing Specialist Career Preference of Malaysian Medical Students

Dr. Kavitha Nagandla^{a*}, Dr. Amit Bhardwaj^b, Dr. Kye Mon Min Swe^c

^aSenior lecturer, Department of Obstetrics and Gynaecology, International Medical University, Jalan Rasah, Seremban 70200

^{b,c}Senior Lecturer Newcastle University No. 1 Jalan Sarjana 1 Kota Ilmu EduCity@Iskandar 79200 Nusajaya Johor Malaysia.

^aEmail: Kavitha.nagandla@gmail.com

Abstract

The career preference of medical students is an important determinant of future workforce in health care system. By studying the career intentions, the dynamics of distribution of manpower among various specialities can be understood. We aim to observe for difference in the career choices of medical students at two stages of medical training, any gender relation to their choices and further determine the factors that influence the career decisions. A descriptive cross sectional study was conducted among 244 undergraduate medical students with a self-administered questionnaire with participant's information of their socio-demographic characteristics, the most preferred speciality that includes both preclinical and clinical specialities and 25 reasons for their choice of speciality. Exposure to clinical years was found to affect the selection of medical based disciplines which is statistically significant. The most common factors influencing the choice was advice from parents, learning experience in the medical school and the intellectual content and less stress related to the speciality. The results highlights that basic science, public health and radiology are less preferred specialities.

Key words: Medical students; specialty; preferences; undergraduate.

* Corresponding author.

1. Introduction

The career preference of medical students is an important determinant of future workforce in health care system. By studying the medical students' attitudes and preferences towards a particular speciality and the diverse factors influencing their choice, the dynamics of distribution of manpower among various specialities can be understood [1]. Malaysian health sector in 2012 reported that there were 36,607 doctors, including specialists, with a doctor to population ratio of 1:791. Based on the 2020 estimation of population growth, around 85,000 doctors are required to achieve the WHO standard target of 1:400. The annual report of Ministry of health in 2012 indicated that despite the increase in specialists of 7.2% from the preceding years, yet it is inadequate to meet the demands of the country especially in the departments of radiology, pathology and emergency medicine. The deficiencies are felt in Sabah and Sarawak with inadequate medical officers and specialists and concentrated efforts are being undertaken to step up the recruitment of more specialists [2]. With the expanding health tourism in Malaysia, specialist services are to be made available not only for Malaysians but for global clients from developed countries who benefit from the lower cost of healthcare service in this part of the world and as well as from less developed countries where such expertise is not largely available. However it is essential to be mindful of the fact that besides specialists there is a great need for primary care physicians to provide clinical preventive services at primary care level against the non-communicable diseases (NCD) such as cardiovascular disease, diabetes and obesity that are at alarmingly increasing trend [3,4,5]. There is clearly a need for clinical specialist and primary care physician workforce in our country.

The future increase in health care professionals is dependent on the speciality career interest of undergraduate medical students. The undergraduate medical curriculum in Malaysia includes five years of training with two years of compulsory rotational internship. The curriculum in most medical schools involves preclinical training in the first two years and clinical training starting from the third year that includes 36 months of clinical training in major medical, surgical and allied specialities. It is observed that career choices are influenced by medical students' experiences that range from demographic to institutional and from personality to societal levels [6]. There is evidence for clinical year's exposure, experiences gained which are associated with eventual shift in preferences and final speciality choices. Prestige to speciality, work content, career opportunities, and willingness to work with chronic patients, remuneration and technical challenges are considered as factors for choosing a speciality [7,8]. Besides these, gender is identified as an important determinant with women preferring part time work and men preferring technical challenges with more learning potential. This supports the decision of women preferring community based careers and men opting for hospital based specialities [9,10]. The objective of the study is to elucidate the preferred speciality of medical students as their career by establishing a baseline data on the career choices at two phases of their training among the fresh students in the first year, and the final year which is the senior clerkship year. We aim to observe for difference in their choices with exposure to clinical years, any gender relation to their choices and further determine the factors that influence the career decisions. The data from these studies is expected to provide input to the Malaysian health care sector of how the students select the speciality based on their perceptions and experiences in the medical school. Such studies will identify specialities with low preferences and efforts can be made in making these options more attractive by training facilities, their working environment or financial rewards and restructuring the selection criteria to promote a uniform speciality distribution of manpower that meets the demands of the

population needs.

2. Materials and methods

A descriptive cross sectional study was conducted among 244 undergraduate medical students between January 2013 and March 2013 (137 of first year students and 107 of final year students) with a self-administered questionnaire in medical college at Melaka, Malaysia. A self-questionnaire was structured and was piloted with medical students to check for item appropriateness and validity. To prepare for the questionnaires, focus group discussion on 10 house officers was carried out to the possible factors influencing the speciality choices and assessed the factors influencing by using open ended questionnaires. The questionnaire has three components that starts with participant's information of their socio-demographic characteristics, the most preferred speciality that includes both preclinical and clinical specialities and 25 reasons for their choice of speciality. The study was conducted after approval from the college research committee. The questionnaire was distributed after obtaining informed consent. Statistical analyses was done using SPSS statistical software version 16. The chi square test and was used to analyse the observations and Pearson's correlation was used to establish correlation between the responses. A p value of < 0.05 with 95% confidence interval is considered to be significant.

3. Results

Socio-demographic characteristics:

There were total 244 students (137 from first year and 107 from final year) participated in this study. The mean age of participants was 21 with a range of 18 to 26 years. The majority of students were Malay (37.7%) followed by Chinese (29.1%) and Indian (28.7%). Regarding gender, majority of students were female total (66.8%) (57.7% in first year and 78.5% from final year) (Table 1)

We also wanted to know about the present of medical profession was related with their choosing medical profession and specialities. We found out that (26.2%) of students had siblings are in medical profession. The educational background of parents was analysed taking into consideration that would influence on their career of choice, but the current study revealed that (51.1%) had their father's education had high school and diploma level and 46.5% had higher educational background (MSc and PhD).

Regarding funding for the course, majority of final year students are scholarship students (72.9%), and (22.6%) of first years students are scholarship students. The rest are funded by the parents and about minority of the students (3.7%) have availed educational loan. The average family income in the final year students ranges from RM350 to 50,000 and for first year students ranges RM 600 to 500,000 which is statically significant ($p < 0.02$). There is correlation between parent income and payment method used for course fees which is statically significant ($p < 0.006$).

The students who have high parent income are self-funded and those whose parent income low got funded from other organization. By comparing the funding of final year and fresher medical students, we can draw conclusion that the fresher students are more self-funded compare with senior students and that is related with

the family income of the two cohort family groups. (Table 2).

Table 1: Socio economic characteristic of first year and final year medical students

		First year (%)	Final year (%)
Gender	Male	42.3	21.5
	Female	57.7	78.5
Ethnicity	Malay	21.2	58.9
	Chinese	33.6	22.4
	Indian	40.9	14.0
	Others	4.4	4.7
Marital status	Single	100	98.1
	Married	0	1.9
Payment(funding)	Scholarship	22.6	72.9
	Self-funded	77.4	18.7
	Loan	0	8.4
Family members in medical profession	Yes	23.4	29.9
	No	76.6	70.1

Table 2: Pearson Correlation between family income and payment method

Correlations			
		Payment	Income
Payment	Pearson Correlation	1	.194**
	Sig. (2-tailed)		.006
Income	Pearson Correlation	.194**	1
	Sig. (2-tailed)	.006	

** . Correlation is significant at the 0.01 level (2-tailed).

Speciality preferences:

Among the final year students, 32.7% preferred medical specialities (48.5% internal medicine, 24% paediatrics, 27 % family medicine, 15% psychiatry) and 10.3% chose surgical specialities (13% general surgery, 28% obstetrics and gynaecology, 24% paediatrics, 20% orthopaedics) and 61% preferred both medical and surgical disciplines. Among the first year students, 16.1% preferred medical specialities (13% internal medicine, 27%

paediatrics, 12% family medicine, 12% psychiatry and 24.1% chose surgical specialities (13% general surgery 31%, obstetrics and Gynaecology, 17% orthopaedics, and 10% cardiothoracic surgery) and (82%) preferred both the disciplines. (Table 3) The first year students preferred surgical specialities, whereas with the exposure into clinical years the preferences were more for medical based disciplines that is statistically significant ($p < 0.001$). (Table 4) Analyses of gender preferences for specialities, our results demonstrated that there is no gender difference in the choice of the speciality. Speciality preference changes after attending medical school which is statically significant. (Table 5)

Table 3: Speciality Preference

Specialities		Responses		Percent of Cases
		N	Percent	
Specialities	Medicine	69	11.9%	31.7%
	surgery	37	6.4%	17.0%
	ONG	62	10.7%	28.4%
	Paediatric	63	10.9%	28.9%
	Ortho	45	7.8%	20.6%
	Psychiatry	31	5.3%	14.2%
	ENT	26	4.5%	11.9%
	Ophthalmology	30	5.2%	13.8%
	Anaesthesia	20	3.4%	9.2%
	Ortho	69	11.9%	31.7%
	Dermatology	31	5.3%	14.2%
	Radiology	15	2.6%	6.9%
	Public health	14	2.4%	6.4%
	Basic science	22	3.8%	10.1%
	Family medicine	46	8%	20.8%
Total		580	100.0%	266.1%

Table 4: Relation of choice on speciality between first year and final year (Chi square value $X^2 = 13.5$, $P = 0.001$)

	Specialty			Total
	Medical specialties	Surgical specialties	Both	
Senior	35(32.7%)	11(10.3%)	61(57.0%)	107(100.0%)
Junior	22(16.1%)	33(24.1%)	82(59.9%)	137(100.0%)
Total	57(23.4%)	44(18.0%)	143(58.6%)	244(100.0%)

Table 5: Relation between Gender and speciality (Chi square value, $X^2=1.8$, Pvalue-0.39)

Gender	Specialty			
	Medical specialties	Surgical specialties	Both	Total
Male	16	18	47	81
	19.8%	22.2%	58.0%	100.0%
	28.1%	40.9%	32.9%	33.2%
Female	41	26	96	163
	25.2%	16.0%	58.9%	100.0%
	71.9%	59.1%	67.1%	66.8%
Total	57	44	143	244
	23.4%	18.0%	58.6%	100.0%
	100.0%	100.0%	100.0%	100.0%

Factors influencing the speciality choices:

The major factors influencing the career decisions include parental advice (9.6%), medical school experience (8.6%), and challenges in the speciality (7.8%), and intellectual content (6.4%), and have flexible hours of working (5.4 %). (Table 6)

Table 6: Factors influencing speciality preference

Factors influencing specialty preference	Percentage
1. Advised by parents	9.6
2. Advised by friends	5
3. Advised by mentors	2.6
4. Advised by family Physician	2.6
5. Medical school experience	8.6
6. Looking forward for a challenging speciality	7.8
7. Intellectual content of the speciality	6.4
8. Like the curriculum of the speciality	6.7
9. Speciality that generate high income	3.1
10. Prefer to have flexible hours	5.4
11. Prefers to have acceptable on call duty	2.7
12. Prefer speciality with short duration program	1.8
13. Prefer speciality with minimal medicolegal issues	1.8
14. Speciality that has more demand in the private sector	3.1
15. Prefer to have no direct contact with my patients	0.8

16.	Speciality that has more reputation	3.6
17.	Speciality that offers more research opportunities	2.4
18.	Speciality that focus on critical/ acute care	2.6
19.	Speciality that focus on community health	3.5
20.	Opportunity for attending to diverse patients	3.5
21.	Interest in long term relationship with patients	3.5
22.	Influenced by personal experience in the speciality (family /relative) who generated specific interest	4.6
23.	Need for the speciality in my country	3.5
24.	Speciality that treats uncomplicated patients	2.0
25.	Prefer to work in speciality with less stress	3.9

4. Discussion

It is conceptualised that career decision-making fluctuates over time in a lifespan of an individual [11]. Speciality choice of medical students is often revisited as they are exposed through curriculum from the basic preclinical science to clinical clerkship [11,12]. There are few studies on career plans of medical students in Southeast Asia, however there is paucity of information in the trends of the speciality choice among the undergraduate medical students at their entry into medical school and during senior clerkship with exposure to clinical years. The result of our study indicate the most preferred speciality among the first year students is general surgery, whereas internal medicine was preferred by senior students who were exposed to clinical clerkship. Redman et al 2011 and Yousef et al 2008 revealed surgery as the most popular speciality but according to Huda et al 2006 internal medicine was the preferred speciality [13,14,15]. Our study observed findings corroborating with all these studies, however the preference pattern changed with exposure to clinical clerkship that is statistically significant ($p < 0.001$). Surgery requires a considerable amount of time, effort that may not allow a controllable life style although is considered as more attractive. Internal medicine is perceived as offering part time work and more prospects and open for sub specialization as confirmed by Mariorova et al. [16]. This can be attributed for the students in our study to prefer internal medicine after clerkship as they perceived it to offer more part time work. With increasingly growing epidemic of chronic non-communicable diseases (NCD) such as diabetes, hypertension, asthma, obesity and osteoporosis in Malaysia, the physicians are increasingly in demand and it is reassuring that students are perhaps aware of this burden [6]. It is observed in our study that there is no gender preference in the choice of the speciality. The career pathway in female doctors is identified to follow an M-shaped curve with a peak in the early career phase, a dip in the middle with a peak in later years [17]. The time taken off for child care may be the reason for the nature of their career curve. Some negative experiences and lack of encouragement is often cited as reason for female not opting surgical specialities [18]. Gender differences in choice of specialties were observed in a study from Kenya and Jordan [13,19]. In contrast a Swedish study demonstrated striking similar speciality preferences among males and females and are of the opinion that such opportunities should be utilised by the health care system for uniform distribution of physician workforce [20]. In western world such as United Kingdom (UK), it is predicted that

female doctors will soon form the majority of work physician force [21]. The observations in Netherlands revealed that 40% of all physicians and 34% of all specialists were female, and it is expected that by 2027,66% of all physicians will be females. Such similar trends have been observed in Asian countries although we need more evidence before we could generalise these observations [22,23]. Thus recent trends witnessed that gender influence is declining and the preferences, attitudes and perceptions of specialities is similar among the genders [24]. This can be attributed to the fact that controllable life style, fixed working hours and family factors are increasingly seem to form the priority for men that determines their career choices [25,26]. The other preferred specialities in our study are paediatrics (10.7%), obstetrics and gynaecology (10.9%) orthopaedics (7.3%), family medicine (8%) and psychiatry. Our study showed the least preferred specialities are anaesthesia (3.4%), radiology (2.4%), public health (2.5%) and basic science (3.8%). It is an important fact that anaesthesia is a unique educational experience for undergraduates that exposes them to the diversity of speciality such as paediatric and cardiothoracic anaesthesia [27,28]. Although anaesthesia rotation exists in undergraduate curriculum, there is diversity in curriculum delivery, duration and assessment across universities in Malaysia. This is related to faculty shortage and increased demand of clinical work. So there is a perceived need to standardise the placement of anaesthesia rotation in the curriculum that increases the awareness of scope of anaesthesia practice [29]. The preference for family medicine and psychiatry are consistent with local study by Zulfiki. However our study projects that radiology and public health or primary care are less preferred contradicting the local study [30]. The importance of community based health education in undergraduate curriculum is validated and the current shift is from curative medicine to preventive medicine [31]. Community based education where clinical teaching is rooted at the level of community health clinics, GP's and primary care centres. This is a very relevant way of motivating the students to choose general practice or other clinical specialities and work in the rural areas or in the areas of the need [32]. Despite this it is identified that there is still a lot of emphasis is being placed in the hospital based curative medicine. It is therefore eventually only a small proportion of students will choose public health as their speciality choice [33].

Early exposure of medical students to radiology in their curriculum is identified to increase the level of interest that can be generated in this specialty [34]. Furthermore our study highlighted that students are less likely to undertake basic science or preclinical as career pathway despite experiences in medical school. This finding is similar to other studies indicating that these subjects are less lucrative and studies indicate the need for strategies to be undertaken by faculty in basic sciences to make academic career more stimulating and attractive. [35, 36, 37]. The historic medical programs of preclinical sciences in the first two years and three years of clinical training as apprentice style in the hospital is been replaced by large by vertical and horizontal integration model. This refers to blurring of boundaries between preclinical and clinical sciences and clustering the knowledge of various disciplines into themes for example, respiratory system that includes anatomy, physiology, biochemistry, clinical medicine, epidemiology related to this theme. This model of teaching SPICES Harden 1984 (S-student centered, P-Problem based, I-Integrated approach, C- Community oriented and S-Systematic) is the modern medical curriculum. Considering this moving forward, students not preferring basic science speciality may not be of concern as they are less likely to be stand-alone specialities [38]. Students were enquired on the factors that influence the choice of their speciality selection and it is identified that the factors largely dominating the choices include parental advice (9.6%), medical school experience, (8.6%), challenges in

the speciality, (7.8%), intellectual content (6.4%) and flexible hours of working (5.4%). It is interesting in our study that parental influence on the choice of the speciality surfaced as an important factor that is not identified in other studies. A study in USA identifies that controllable life style is the most important factor above high income potential and intellectual content of the speciality [39]. This is of contrast to our study where high income was considered among 3.1% as influencing factor. So there is a combination of personal and professional factors interplay that influence the speciality choice. Although the influence of mentors or role model was not substantial on our study (2.6%), the positive influence of role models in determining the speciality choices is evident is medical education [38]. However, a negative role model in a clinical speciality can make the speciality an unattractive future option for the students. Interestingly anticipation of better income did not appear to be predominant factor in our study similar to study in Nigeria [27]. It is understandable that the decision for selecting a particular speciality is complex with more than one factors and there is a need for studies for to analyse these factors with qualitative approach.

5. Conclusions

This study reflects that the most preferred specialities among the undergraduates are the internal medicine, orthopaedics, obstetrics gynaecology, general surgery and paediatrics. Exposure to clinical years was found to affect the selection of medical based disciplines which is statistically significant. The most common factors influencing the choice was advice from parents, learning experience in the medical school and the intellectual content and less stress related to the specialty. The results highlights that basic science, public health and radiology are less preferred specialities. This calls for health planners to plan, reorganise and strength our medical education and recruitment process in way that these specialities become financially rewarding and attractive for homogeneity of the system.

6. Limitations of the study

This study is a unicentric study and the results cannot be generalised. The study concentrates on the fifteen specialities and has not considered all minor specialities and subspecialties. Besides, the influencing factors were provided in as closed ended questions that might have actually undermined the identification of other factors. This study is undertaken in a private medical college where increasing number students are from higher income and the findings may not reflect the opinion of medical students from public colleges. It may again influence the choice of speciality that may not be determined by financial considerations.

7. Future research

There is need for studies to follow up cohort of students from the first year to their postgraduate training to come out with findings that can provide qualitative information. However the cost and practical implication, and the effect of drop out of participants in a long duration of study is a challenge on its own.

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