Career preference of undergraduate medical students and its underlying factors

Md. Anayet Ullah[a], Arunodaya Barman[b], Rogayah Ja'afar[c]
Muhamad Saiful Bahri Yusoff[d], BK Dam[e]

Abstract

Objective: To explore the nature of career preferences (either general practice or speciality practice) in Malaysian undergraduate medical students and its underlying factors **Methods:** Total 210 1st year MBBS undergraduate medical students of the Universiti Sains Malaysia were invited to participate in this study. Data were collected by self administered questionnaire and Focus Group Discussion (FGD). Chi-square, Mann-Whitney test and Multiple logistic regression were applied to find out the influencing factors of career choice. **Results:** A total of 210 students, 146 (70%) students responded in this study. Among the 146 respondents, 105 (71.9%) students preferred specialty practice (SP) and 20 (13.7%) preferred general practice (GP) as their future career. Medical life style and societal orientation were statistically significant predictors of career preferences. Student preferences general practice as their future career increased by about 8% and 7% for each additional medical life style and societal orientation score respectively. Students preferred general practice mainly due to its diversity, role model and life style option. **Conclusion:** Assessment of the societal orientation and medical life style factors of the candidates should be encompassed with the medical school admission policies for enhancing the number of GP. Medical schools should be encouraged to increase the number of GP teachers/academics involved in teaching their medical students. Health policy makers should be more concentrated on the life style factors to attract the medical students towards general practice by offering a superior work-life balance of GPs.

Key words: Career preference, undergraduate students, Malaysia

[a]Professor, Department of Community Medicine, Barind Medical College, Rajshahi, Bangladesh.

[b]Professor, Faculty of Medicine, Universiti Sultan Zainal Abidin Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu, Malaysia.

[c]Professor, Department of Medical Education, School of Medical Sciences, Unuversiti Sains Malaysia.

[d]Senior Lecturer, Department of Medical Education, School of Medical Sciences, Unuversiti Sains Malaysia, Kelantan, Malaysia.

[e]Professor, Department of Orthopaedic Surgery Barind Medical College, Rajshahi, Bangladesh.

Correspondence to :
MA Ullah
md.anayet_u.@yahoo.com

Cite this as:
BMCJ 2 018;4(2): 14-21

Received : 25 March 2018
Accepted : 27 May 2018

Introduction

During the undergraduate course from first year to fifth year, medical students construct their future career identity through a process of medical socialization.[1] The choice of the future career is a complex personal decision resulted as the multi-factorial interaction during preclinical and clinical Phases. Several factors, like demography, culture and societal values, perception about the future career, attitudes towards specific specialties have been identified as the interacting factors.[2-4]

Recently, the medical career choice issue has become an important determinant of the health status of individuals, communities and nations. There is a negative impact of geographic and professional specialty maldistribution on healthcare quality and equity.[5-7] The relationship between specialty distribution and the performance of a health care system is now largely accepted. Most of the countries in the World, primary care career enhancement is a national goal and a means to address the noxious effects of specialty misdistribution.[5-10]

Over the last couples of decades, the number of medical students choosing general practice/family medicine as a career has steadily decline in different countries of the world.[2,11,12] Considering the importance of the supply side of this equation, especially in light of recent trends towards a relative lack of primary care /generalists doctors, the topic of medical students' career interests is worthy of research.

The purpose of the study is to explore the nature of career preferences (either general practice or specialty practice) and its underlying factors of undergraduate medical students during preclinical year (phase I) in the Universiti Sains Malaysia.

Methods

This was a cross-sectional study among the 1st year undergraduate medical students, Universiti Sains Malaysia. All 210 1st year students were invited to participate in this study.

Data collection

Techniques and Instrument

After receiving approval from the Medical school ethics Committee at the Universiti Sains Malaysia, data were collected by survey through self administered questionnaires and focus group discussion (FGD). The questionnaires were distributed to the first year students at the end of a lecture class and were collected with the responses. Written informed consent forms were signed by the students before responding to the questionnaires. The self administered questionnaire was divided into three sections. The first section was designed to record a student's career preference. The 2nd section was Career Preference Factors Scale (CPFS)[13] designed to measure the student's perceived influencing factors of this preference. CPFS included 19 items comprised medical lifestyle, economy and prestige, societal orientation, hospital orientation and ease to built up career factors respectively. The items were rated with a 5-point Likert. The 3rd section was for demographic characteristics of the students including gender, ethnicity, entry qualification and place of family residence.

Focus Group Discussion

After identification of the students who preferred general practice from the data collected by self administered question, FGDs were conducted. Total 20 students preferred general practice. Two sessions of FGD were conducted with 10 students in each group. At the beginning of FGD, the facilitator welcomed participants and anonymity was discussed. He also outlined the ground rules to the participants. The participants were also informed that they might be interrupted to redirect the conversation. After introduction of the participants, they were asked to express what the 'general practice' / 'family medicine' meant to them, gradually drawing them to the specific topic of inquiry (reasons to prefer general practice). They were interrupted when they no longer focused on issues relevant to the study. In these cases, they were bought back to the topic of inquiry using key questions or prompts such as "why you are interested to do general practice?" Finally, participants were asked to summarize the important reasons to prefer general practice. After that, the moderator closed the discussion with expressing thanks to the participants The whole FGD sessions were recorded in a tape recorder and same time transcribed by the recorders.

Data analysis

Quantitative Data (collected by survey) were analyzed in computer using SPSS for windows (version 18.0). Descriptive statistics involving frequency distribution, computation of percentage, proportions etc were used. Since the 5 domains (factors) of the CPFS were not in equal range of scores, the total scores of the 5 factors were standardized by converting percent score before analysis. Exploratory data analysis was conducted to establish the distribution of all the factor scores. Chi-square test was applied to find out the association between career choice and demographic factors (categorical variables). Kolmogorov-smirnov test and the values of the skewness and kurtosis of the factor scores suggested that these scores were non-normally distributed. Non-parametric statistics, Mann-Whitney test was applied to find out the association of the students career preference (either general practice or specialty practice) and the factor scores (medical life style, societal orientation, economy and prestige, hospital orientation and ease to build up career). Multiple logistic regression was applied using career preferences (general practice vs specialty practice) as criterion variable, and the student perceived influencing factors of their preferences and demographic characteristics as predictor variables.

Results

Out of 210 1st year undergraduate medical students in Universiti Sains Malaysia, 146 (70%) students responded in this study. Of the 146 respondents, 105 (71.9%) students preferred specialty practice and 20(13.7%) preferred general practice as their future career. The rest 21 (14.4%) students remained undecided about their preferences (Figure 1).

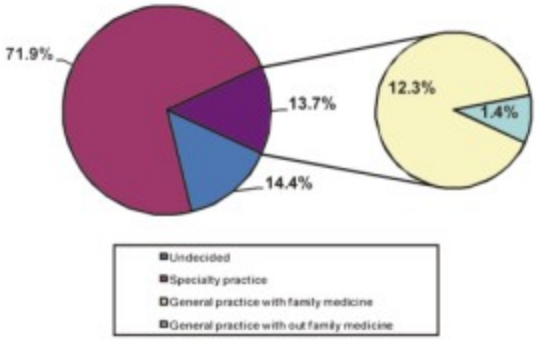

Figure 1 Career preferences of 1st year undergraduate medical students in Universiti Sains Malaysia

General surgery was the top (n=28, 26.6%) of the specialty list preferred by the students as future career. Pediatrics and Obstetrics & gynecology were the second (n = 21, 20.0%) and third (n=16, 15.2%) position respectively (Table 1).

Table 1: Specialty preferences of first year undergraduate medical students in Universiti Sains Malaysia.

Specialty	Frequency N (%)
General Surgery	28 (26.6)
Pediatrics	21 (20.0)
Obstetrics & Gynecology	16 (15.2)
Emergency medicine	11 (10.5)
Internal Medicine	7 (6.7)
Orthopedics	4 (3.8)
Pathology	4 (3.8)
Cardiology	3 (2.9)
Psychiatry	2 (1.9)
Otorhinolaryngology	2 (1.9)
Neurosciences	2 (1.9)
Oncology	2 (1.9)
Others	3 (2.9)

Table 2: Distribution of the factor scores of the students in Career Preference Factors Scale

Factor	Mean (SD)	Median (Interquartile range)	Skewness (Std.error)	Kurtosis (Std.error)	Kolmogorov-Smirnov* (p-value)
Medical life style	66.3 (16.6)	68.0 (18.0)	-.662 (.217)	.582 (.430)	.000
Economic and prestige	60.6 (17.9)	60.0 (25.0)	-.167 (.217)	-.468 (.430)	.022
Social orientation	77.8 (12.4)	80.0 (15.0)	-.324(.217)	-.515 (.430)	.000
Hospital orientation	67.1 (15.3)	66.7 (26.7)	-.140(.217)	-.505 (.430)	.000
Ease to build up	47.6 (19.5)	46.7 (26.7)	.278 (.217)	-.476 (.430)	.002

*Lilliefors Significance Correction

The median scores of Social orientation factor was the highest (8015.0) among the factors those influenced the students' career preferences measured in CPFS and the median of ease to build up factor was the lowest (46.726.7). The skewness and kurtosis values with their Std.errors of the factor scores suggested non-normality distribution of them. The results of Kolmogorov-Smirnov test of the factors' scores confirmed that the distribution of the individual factors' scores differed from normal (Table 2).

Table 3: Students' demographic characteristics and their career preference n = 125

Demographic characteristics	Career preference		Chi-square	
	General practice N (%)	Specialty practice N (%)	Statics	P value
Gender				
Male (n = 39)	6 (15.4)	33 (84.6)	.016	.563
Female (n = 86)	14 (16.3)	72 (83.7)		
Ethnicity				
Malay (n = 64)	12 (18.8)	52 (81.3)	.738	.270
Others (n = 61)	8 (13.1)	53 (86.9)		
Place of family residence				
Urban (n = 89)	13 (14.6)	76 (85.4)		
Rural (n = 36)	7 (19.4)	29 (80.6)	.446	.337
Entry qualification				
Matriculation (n = 95)	17 (17.9)	78 (82.1)	1.057	.234
STPM/others (n = 30)	3 (10.0)	27 (90.0)		

Table 4: Relationship of students' CPFS scores and their career preferences

Factors	Median CPFS scores (inter-quartile range)		Test statistics	
	General practice	Specialty practice	Z value	P value
Medical life style	78.0 (18.0)	64.0 (20.0)	-3.726	.000
Economic and prestige	60.0 (26.2)	60.0 (25.0)	-.490	.624
Societal orientation	85.0 (10.0)	80.0 (20.0)	-2.795	.005
Hospital orientation	60.0 (25.0)	66.7 (23.3)	-1.702	.089
Ease to build up	53.3 (30.0)	46.7 (26.7)	-1.633	.103

Mann-Whitney test was applied

Gender, ethnicity, place of family residence and entry qualification of the medical students were not associated with the preference of general practice as their future career (Table 3). The median medical life style and societal orientation factor scores of the students, who preferred GP as their future career, were significantly higher than those, who preferred SP (78.0 & 85.0 V. 64.0 & 80.0 respectively). The preference either or SP as future career was significantly associated with the medical life style (p = 0.000) and societal orientation (p = .005) factor scores (Table 4).

Table 5: Multiple logistic regression analysis : predictors of career preferences

Factors	Odds ratio	95% CI	p-value
Female	1.190	0.336 4.211	0.788
Rural	1.634	0.390 6.846	0.502
Malay	1.456	0.380 5.575	0.584
Medical life style	1.083	1.026 1.144	0.004
Economic and prestige	0.972	0.934 1.011	0.160
Societal orientation	1.075	1.011 1.143	0.022
Hospital orientation	0.960	0.921 1.001	0.053
Ease to build up	1.027	0.995 - 1.059	0.096

The multiple logistic regression showed that medical life style and societal orientation were statistically significant predictors of career preferences. The odds ratios of students' preferences general practice as their future career for medical life style and societal orientation scores were 1.083 and 1.075 respectively. Student preference general practice as their future career increased by about 8% and 7% for each additional medical life style and societal orientation score respectively (Table 5).

Three reasons emerged from focus group discussion of the students for preferring general practice as their future career Several Students preferred general practice due to its diversity. Interaction and establish a relationship with different varieties of patients attracted them towards general practice:

Because it is exciting to meet different people every day. Treating them, talking with them and give their smile back brings satisfaction and happiness to me. (Za'aimuddin, aged 19)

Role model also be identified as a reasons for preferring general practice by the students:
Yusri: I am a bit influenced by my father who is a general practitioner.

Some students preferred general practice due to their life style option:
Because for me as general practitioner, I will have more time for my self and family and I think it is not as being a specialist. (Malek, aged 20)

Discussion

Over the last two decades, the number of medical students choosing general practice as a career has been steadily declined across the world specially in developed countries. The proportion of medical students selecting general practice as a first choice for a residency has decreased in Canada substantially, from 44% in 1992 to 28% in 2005.[13] In the United States, the proportion of students matching to careers in general practice has fallen from a high of 72.6% in 1996 to 40.7% in 2005, the lowest percentage ever.[14] The results of this study comparing with the previous studies[15-18] revealed that students' choice of general practice has not

been declined in Malaysia as like the developed countries, it is remained as it was before. But considering the importance of the supply side of the equation, students' preferences for general practice/family medicine in Malaysia should be increased. This would help to overcome the shortage of general physicians in Malaysia. Because Malaysia needs more general practitioners to develop an advanced health system with a vision to a developed country status by the year 2020.[9,10,19]

Many Studies[20-23] in the 1990s revealed that female students often prefer more general practice/family medicine than male due to its flexibility regarding working place, time and schedule. But this study findings did not agree with them. Multiple factor may be responsible for this disagreement, like changing expectations of gender roles in society, personality changes of female medical students and feminization of medicine. Men are also seeking opportunities for flexible and part-time work to fit with domestic responsibilities for greater participation in family life and a more balanced lifestyle.[24] There is also evidence that personality changes have occurred among the female medical students where they have become more action oriented and aggressive. That is why formerly male-dominated specialties are now a days over represented by women.[17] Additionally due to feminization formerly male-dominated specialties are now a days over represented by women also.[25] Recently in 2008, Maiorova et al.[26] also suggested that men and women do not differ substantially in their interest in general practice. Life style factor, which are mainly the preference of women, are not important at the undergraduate stage. This finding also consistent with the present study, the mean score of the medical lifestyle factor score of male and female students was very close (66.6 vs 66.1).

Ethnicity is weakly related to the students' choice of general practice as their career.[27] The present study findings also suggest that ethnicity is not a significant predictor of students choice the general practice as their career.

The present study findings suggest that student of rural background has no effect on student preference the general practice as their future career. In early literatures.[21,23,27] students with small towns or rural backgrounds were more likely to choose general practice career. One of the explanations of it in literatures was that rural students may had greater exposure to the general practitioner role model than clinical specialist role model.[12,28] In Malaysia general practice specially in private sector is urban based. More than 8000 private general practitioners and 7454 private primary care clinics have been running through out the country, especially urban areas.[29] These clinics are largely run by either single-handed or a group of 2-3 general practitioners.[9] This facilitates the urban students general practitioners role model exposure also same as the rural students. However, it need to explore.

In this study, societal orientation is the highest scored student perceived factors for the preference of their future career. It may be due to the motives of the students before entering medical school. Because majority of the students, choose the medicine due to socially oriented motives, like to help the people, establish relationship with the people, a practice in a underserved areas etc.[16] The present study also suggests that societal orientation positively influence the fist year medical students to select general practice as their future career. It is consistent with the other studies.[2,30]

The present study suggests that hospital orientation plays an important role to determine the career preference of the first year students. Surgery, Obstetrics & Gynecology and others surgery based specialties has been reported previously to be the most popular among medical students at matriculation.[31,32] This preadmission

perception may be one of the explanation of high influence of hospital orientation on career preference among the first year students. But the study suggests that hospital orientation had no influence to select general practice as their first preference by the first year students. It indicates that hospital orientation factor is equally important to both the groups of students preferred either general practice or specialty practice. It may be due to exposure of the students to the clinic based general practice, which is very common in Malaysia.[9,29]

Literatures revealed that medical lifestyle factors like fixed hours of practice, time allocation for the family, acceptance on call schedule are the important determinant of general practice preference by the medical students and newly graduated physicians.[2,12,18] But recently in 2008, Maiorova et al. (2008)[26] suggested that at the undergraduate stage, medical life style factors seem less important to the medical students. The question of a balance between work and private life is a question of later concern. The present study findings don't agree with Maiorova et al. (2008)[26], it suggests that it not a matter of later concern, fresh medical students are also aware about a balance between work and private life from the first year.

The present study suggests that societal orientation and medical life style factors are the important predictors of general practice preference rather than the other perceived factors like, hospital orientation , economy and prestige, and easy to build up career and their demographic characteristics among the first year medical students.

The study have a number of limitations. Firstly, it was a cross-sectional study, we do not know the ultimate career choices of the this cohort , shifting in career preferences might be occurred during later year in medical school that must be taken into consideration during interpretation of the results. Secondly, only students' demographic and perceived influencing factors were examined in relation to their career preferences. Possible other factors such as personality types of the students, institutional characteristics, curricular features were not considered in this study. Thirdly only first year USM medical students participated in this study, it might not be generalized.

Despite of these limitations of this study, a number of findings have implications for student selection of medical schools, career choice and further research. Assessment of the societal orientation and medical life style factors of the candidates should be encompassed with the medical school admission policies for enhancing the number of GP. Medical schools should provide counselling of the medical students for maintaining and increasing the socially oriented motives, like to help the people, establish relationship with the people, a practice in a underserved areas etc. Medical schools should be encouraged to increase the number of GP teachers/academics involved in teaching their medical students. Such people act as positive role models to the students. Health policy makers should be more concentrated on the life style factors to attract the medical students towards general practice by offering a superior work-life balance of GPs. Further study is needed on the practice of the student's perceived factors as admission criteria of the medical schools to get the desire number of future general practitioners. It is also needed to reexamine the role of rural back ground as a selection criteria for increasing the general practitioners.

Acknowledgements
We would like to express our gratitude to Universiti Sains Malaysia for this short term grant to carry out the study.

References

1. Linzer M, Slavin T mutha S, Takayama JI, Branda L, vanEyck S, McMurray JE, Rabinowitz HK.Admission, recruitment, and retention: finding and keeping the generalist-oriented student. SGIM Task Force on Career Choice in Primary Care and Internal medicine. J Gen Intern Med. 1994; 9: 14-23.
2. Wright B, Scott I, Woloschuk W, Brenneis F. career choice of new medical students at three Canadian universities: family medicine versus specialty medicine. JAMC 2004; 170(13): 1920-4.
3. Kassebaum DG, Szenas PL. Factors influencing the specialty choices of 1993 medical school graduates. Acad Med. 1994; 69: 163-70.
4. Kassebaum DG, Szenas PL, schuchert MK. Determinants of the generalist career intentions of 1995 graduating medical students. Acad Med. 1996; 71: 198-209.
5. Bland CI, meurer LN, Maldonado G. Determinants of primary care specialty choice: a non-statistical meta-analysis of the literature. Acad Med 1995;70: 620-41.
6. Rabinowitz H. Recruitment, retention, and follow-up of graduates of a programme to increase the number of family physicians in rural and underserved areas. N Engl J Med 1993; 328: 934-9.
7. Starfield B. Primary Care: Balancing Health Needs, Services and technology. Oxford: Uxford University press, 1998.
8. Senf JH, campos-outcalt D, Watkins AJ, Bastacky S, Killian C. A systematic analysis of how medical school characteristics relate to graduates' choice of primary care specialties. Acad Med 1997; 72: 524-33.
9. Ramli AS, Taher SW. Managing chronic diseases in the Malaysian primary Health care a need for change. Malaysian Family physician 2008; 3(1): 7-13.
10. Hashim A. Overview of Malaysia's integrated telehealth project. http://www.e-imj.com/Vol2-No1/Vol2-No1-14.htm, last accessed on November. 3, 2009.
11. Schafer S, Shore W, French L, Tovar J, Hughes S, Hearst N. Rejecting family practice: why medical students switch to other specialties. Medical student Education 2000; 32 (5): 320-5.
12. Scott I, Gowans MC, Wright B, Brenneis F. Why medical students switch careers. Can Fam Physician 2007; 53(1): 94-5.
13. Ullah MA, Barman A, Ja'afar R, Yusoff MSB. The Career Preference Factors Scale (CPFS): Development and Psychometric properties. IMJ 2013; 20(1):72-6.
14. Sullivan M. Why are fewer medical students choosing family medicine as a career? Retrieved from http://www.artc-hsr.ca/Documents, last accessed on November 11, 2014.
15. American Academy of Family Physicians. 2005 National Resident Matching Program. Leawood, Kan: American Academy of Family Physicians; 2006. Retrieved from http://www.aafp.org/match/table01.htm. last accessed on November 11, 2014.
16. Jaafar R, Ahmad Z. The timing and stability of choice of medical specialty among Malaysian doctors. Med J Malaysia 2001; 56(3): 324-30.
17. Razali SM. Medical school entrance and career plans of Malaysian medical students. Medical Education 1996; 30: 418-23.
18. Zulkifli A, Rogayah J. Career preferences of male and female medical students in Malaysia. Med J Malaysia 1997; 52(1): 76-81.
19. Ahmad Z, Jaafar R. Career choices of physicians in Malaysia. JUMMEC 1999; 1: 47- 50.
20. Merican MS. Rights and responsibilities of doctors: future of doctors in Malaysia. Retrieved from http://mmc.gov.my/v/docs, last accessed on November 11, 2014.
21. Rhoders PJ. The career aspirations of women doctors who qualified in 1974 and 1977 from a United Kingdom medical school. Med Edu 1989; 23: 125-35.

22. Schieberl JL, Covell RM, Berry C, Anderson J. Factors associated with choosing a primary care career. West J Med 1996; 164(6): 492-6.
23. Noble J, Robert H, Friedman, Starfield B, Ash A. Black C. Career differences between Primary Care and traditional trainees in Internal Medicine and Pediatrics. Ann. Intern. med 1992; 116: 482-7.
24. Kassebaum DG, Szenas PL, Schuchert MK. Determinants of the generalist career intentions of 1995 graduating medical students. acad. med 1996; 71: 197-209.
25. Evans J, Goldacre MJ, Lambert TW. Views of UK medical graduates about flexible and part-time working in medicine: a qualitative study. Med Educ 2000 May; 34(5): 355-62.
26. Lambert T, Michael j, Turner G. Career choices of United Kingdom medical graduates of 2002: questionnaire survey. Med Educ 2006; 40(6): 514-21.
27. Mairova T, Stevens F, Zee JVD, Boode B, Scherpbier A. Shortage in general practice despite the feminization of the medical workforce: a seeming paradox? A cohort study. BMC Health services research 2008; 8: 262. Retrieved from http://www.biomedcentral.com/1472-6963/8/262, last accessed on November 11, 2014.
28. Senf JH, Campos-outcalt D, Kutob R. Study of factors influencing medical students in their choice of family practice as specialty (Arizona Study). Retrieved from http://www.aafp.org/online/en/home/aboutus/specisalty/specialtychoice.printerview.htm, last accessed on November 11, 2015.
29. Nelson-Jones R, Fish DG. Career preferences of first-year students at Canadian medical schools, 1966-67 to 1968-69. Can Med Assoc J 1970 ; 103(1): 29-33.
30. Merican MI, Rohaizat BY, Haniza S. Developing the Malaysian health system to meet the challenges of the future. Med J Malaysia. 2004; 59(1): 84-93.
31. Senf JH, Campos-outcalt D, Kutob R. Factors related to the choice of family medicine: a reassessment and literature review. JABFP 2003; 16(6): 502-12.
32. Sanfey HA, Saalwachter-Schulman A, Nyhof-Young JM, Eidelson B, Mann BD. Influences on medical student career choice: gender or generation? Arch Surg. 2006;141:1086-94.