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(RESEARCH ARTICLE)

The influence of demographic factors on the choice of career pathway of medical students: A Malaysian context

Kavitha Ashok Kumar [1,*], S. M. Ferdous Azam [2] and Ashok Kumar Jeppu [3]

[1] *Department of Otorhinolaryngology, Year 4 MBBS Coordinator, International Medical School, Management and Science University, University Drive, Off Persiaran Olahraga, Section 13, 40100, Malaysia.*
[2] *Post Graduate Center, Management and Science University, University Drive, Off Persiaran Olahraga, Section 13, 40100, Malaysia.*
[3] *Department of Biochemistry, Year 1 MBBS Coordinator, International Medical School, Management and Science University, University Drive, Off Persiaran Olahraga, Section 13, 40100, Malaysia.*

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Abstract

Introduction and aim: The healthcare scenario has changed tremendously in the 21st century providing multiple career pathways for medical students and is no longer limited to patientcare. To equip graduates with competencies suited for the job, it is vital to know the aspirations of present-day medical students. Hence, this study aimed to investigate their choice of career pathway and the influence of sociodemographic factors in Malaysian context.

Methods: A quantitative study with cross sectional survey was conducted in a private medical school in Malaysia using well-structured questionnaire. 318 students from all five years of training were chosen by disproportionate stratified random sampling. Descriptive and inferential statistics was used for data analysis.

Results: Majority of the study population showed inclination towards traditional pathway of either pursuing specialty training or opting for government service while, a few chose alternative careers. Gender and year of training were found to have a significant influence on their choice of career pathway. While ethnicity, marital status or household income did not show a significant difference.

Conclusion: This study gives preliminary information on the intent of Malaysian medical students regarding their career pathway. The results may help policy makers in planning strategies for medical education to keep pace with the ambitions of 21st century medical students.

Implications: The medical curriculum designers ought to incorporate skills in research and entrepreneurship to prepare students opting for alternative careers. Further, the governing bodies need to plan for training the large number of Malaysian medical graduates aspiring to be specialists.

Keywords: Alternative careers; Medical graduates; Malaysia; Training

1. Introduction

Medicine is a highly specialized field. Students motivated towards patient care, service to society, and interested in the field of science usually choose to study medicine [1]. While others are encouraged to choose this field by the social and financial status it offers [2,3]. Rarely, some students especially in Asian countries are compelled by family members to take up a career in medicine to fulfill the family tradition or live up to their family prestige [4]. Hence, students with different aspirations enter medical schools.

* Corresponding author: Kavitha Ashok Kumar Orcid No. 0000-0002-5900-0203

Medical program in Malaysia is of five years duration delivered in two phases. Phase I consists of two years of preclinical teaching and phase II of clinical teaching over three years duration. Following graduation, they need to do two years of compulsory internship. Traditionally, they then work in government hospitals as medical officers for a minimum of two years. Later, it is optional for them to continue as general practitioners or take up postgraduation to become a specialist which again takes around four to six years. Thereby, studying medicine can be quite tedious and demanding for some while fulfilling and exciting for others.

Recent literature shows that many young doctors are contemplating a career shift and considering alternative careers [5,6]. The reasons cited are varied and complex. Job in medical field poses numerous challenges to young doctors like long working hours, risk of contracting infectious diseases, demanding working conditions and poor work-life balance [7,8]. In the 21st century, the humungous growth in digital technology has opened newer avenues for medical students with other career options like hospital administrator, medical researcher, lecturer in medical school, medical journalist or be self-employed. This study aims to investigate the choice of career pathway among students at different stages of academic advancement in a private medical school in Malaysia and evaluate the influence of socio demographic factors affecting it.

2. Material and method

2.1. Study population, Study design and Sampling technique

This study employed a quantitative method with a cross-sectional study design. Data was collected using a well-structured questionnaire from medical students studying in a private medical school at Shah Alam, Malaysia. A disproportionate stratified random sample was used to get a representative sample from all five years of academic training in the medical school. The student's name-list formed the sample frame and the Krejcie- Morgan table was used to calculate the sample size with additional 20% added to accommodate for the non-respondents [9]. This study was conducted between April 2021 and September 2021.

2.2. Data analysis

The collected data was screened for missing entries and later analyzed using SPSS version 26. Descriptive statistics and inferential statistical tests were employed. Chi-squared tests (bivariate analysis) was utilized to identify significant differences among groups (gender, ethnicity, year of study, marital status and household income) which were considered as factors influencing the choice of career pathway among the study population. Significance was set at $p<0.05$ for all statistical tests.

2.3. Ethical consideration

This study was undertaken after obtaining ethical approval from the ethical board of the university research committee (MSU-RMC-02/FR01/01/L1/015). All the participants were informed about the voluntary nature of this survey and that they could refuse to participate as well as leave at any stage from this study. They were informed regarding the objectives of this study, the confidentiality of the data collected and its use solely for research. An informed consent was taken from all the participants.

3. Results

A total of 318 students participated voluntarily in this study. The demographic profile of the respondents is as shown in Table 1. Females constituted 68.3% of the study population. This trend of female preponderance has been seen in majority of studies conducted at institutions of higher learning in Malaysia [10,11]. The study population was represented by all the major ethnic groups like Malays, Chinese and Indians as well as other minor indigenous ethnic groups in Malaysia [11]. Regarding the marital status, majority of the sample was still single (98.1%) as most of the medical students were in the age group of 18-25 years and the average age at marriage in Malaysia is 27 years [12]. Based on monthly household income, the Malaysian families are classified as B40 (<4849 RM), M40 (4850-10,959 RM) and T20 (>10,960 RM) as per the Department of Statistics, Malaysia [12]. Most of the study population belonged to the M40 and B40 families with < 10,000 RM family income.

Table 1 Demographic profile of study population

Demographics		**Year of training**					**Total**	**Percentage**
		Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**		
Gender	Male	23	16	8	23	31	101	31.7%
	Female	26	33	38	31	89	217	68.3%
Ethnicity	Malay	32	22	20	37	61	172	54.1%
	Chinese	01	03	01	0	03	08	02.5%
	Indian	14	21	21	16	54	126	39.6%
	Others	02	03	04	01	02	12	03.7%
Marital status	Single	49	49	45	54	115	312	98.1%
	Married	0	0	01	0	05	06	01.9%
Household income/month (in Malaysian Ringgit)	<10,000	26	32	35	36	88	217	68.2%
	10,000-25,000	22	10	10	13	26	81	25.4%
	25,000-50,000	0	05	01	05	05	15	05.0%
	>50,000	01	02	0	0	02	05	01.3%
Total		49	49	46	54	120	318	100%

Y= year of training in medical school

The various career options available for medical graduates in Malaysia namely continuing in government service, pursuing specialist training, become a lecturer in a medical school, be a clinical researcher, start a clinic or start own business were posed to the respondents and the results obtained are as depicted in Table 2.

Table 2 Choice of career pathway among the study population

Choice of career pathway	**Year of training**					**Total**	**Percentage**
	Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**		
Government service	11	10	13	9	44	87	27.4%
Specialist	28	34	27	31	68	188	59.0%
Others							
a)Clinical researcher	01	02	0	0	0	03	0.94%
b) Lecturer	01	01	0	01	02	05	1.57%
c) Own clinic/ business	08	02	06	13	06	35	11.0%
Total	49	49	46	54	120	318	100%

It showed that 59 % of the respondents plan to be a specialist while 27.4% would be joining the government service after graduation and 11% intend to be self-employed. Few opted for a career in clinical research (0.94%) and 1.57% considered taking up a teaching position as a lecturer in medical schools.

3.1. Influence of demographic factors on the choice of career pathway among medical students

The influence of the demographic variables on the choice of career pathway among the respondents was analyzed using Chi-square goodness of fit test. The cross tabulation of the demographic variables with the choice of career pathway is depicted in Table 3. For fulfilling the criteria of Chi-square tests, the small number of respondents who chose researcher/ lecturer/ own clinic were combined under others.

Table 3 Comparison of demographic profile of the study population with choice of career pathway

Demographic variable		Government service	Specialist training	Others	Total
Gender	Male	22	55	24	101
	Female	65	131	21	217
Ethnicity	Malays	48	99	25	172
	Indian	33	79	14	126
	Others	06	08	06	20
Household income	< 10,000RM	67	121	29	217
	10,000-25,000RM	16	54	11	81
	>25,000RM	04	11	05	20
Marital status	Single	85	182	45	312
	Married	02	04	00	06
Year of training	Year 1	11	28	10	49
	Year 2	10	32	07	49
	Year 3	13	27	06	46
	Year 4	09	31	14	54
	Year 5	44	68	08	120

Further, the significance of the difference observed in Chi square test was calculated and depicted in table 4.

Table 4 Chi square test of significance

Demographic variable	Pearson Chi square	df	Asymptotic significance (2-sided)
Gender	11.757	2	0.003*
Ethnicity	6.100	4	0.192
Year of study	19.288	8	0.013*
Household income	6.111	4	0.191
Marital status	1.015	2	0.602

*Significance at p<0.05

The gender and year of study were found to significantly influence the choice of career pathway among the study population. Among male medical students, 21.7% were inclined to continue in government service, 54.45% venture into speciality training and 23.7% wanted to try other career options. While among the female medical students, 29.9% chose to continue in government service, 60.3% expressed the desire to go for speciality training and only 9.67% thought of venturing into careers other than patient care. Similarly, a statistically significant difference was observed between medical students in different years of training (Table 4). Among the final year students, 36.67% chose government service, 56.67% chose speciality training and 6.67% chose other career pathways. While among the year 4 students, 16.6% opted for government service, 56.67% wanted to pursue speciality training and 25.9% chose other career pathways. On the other hand, 28.3% year 3 students chose government service, 58.7% chose speciality training and 13.04 % chose other career pathways. As of year 2 students 20.4% chose government service, 65. 3% chose speciality training and 14.3% chose other career pathways. While 22.4% year 1 students desired to join government service,57.14% wanted to join speciality training and 20.40% chose other options. Thereby, it is seen that more than 50% of the students across the years of study are planning to pursue further studies in the speciality of their choice. Except for year 4 students, more than 20% of students in all other years of study opted for continuing in government service. Those who plan to pursue an alternative pathway were seen majority in Year 4 (25.9%) followed by Year

1(20.4%), Year 2 (14%), Year 3 (13.04%) and Year 5 (6.67%). The career pathway was not statistically different among students based on ethnicity, marital status or household income.

4. Discussion

Career pathway for 21st century medical students is not as straight forward as it was earlier (5). This study explored the choice of career pathway among students at different levels of training in a private medical school in Malaysia using a well-structured questionnaire. The findings of the study show that gender has a significant influence on their choice of career pathway. Female students seem to follow the well-trodden path with majority aspiring to either join government service or take up specialty training. This could be attributed to females being more people oriented than their male counterparts [13]. On the other hand, a larger number of male students were willing to delve into newer areas such as research, business, or medical education. Scholars have documented higher entrepreneurial intentions among male students [14]. Studies reveal that males demonstrate more risk-taking behaviour [15]. Further, greater self-efficacy among males in Asian countries make them choose alternative career pathways [16,17]. The role congruity theory also shows that females have lower attitude, subjective norm and perceived behavior control when compared to their male counterparts which makes them underestimate their capacity and decrease their self-confidence [18]. Thereby, majority of female medical students choose traditional career pathway.

Malaysia is a multi-ethnic country consisting of Malays, Chinese, Indians, and many minor indigenous groups. Culture is known to influence the values, beliefs and attitudes of an individual and hence may influence behaviour of individuals [19]. Further, in Asian countries with collectivistic societies, family culture is known to influence the choice of career [4,20]. However, the findings of the current study showed no significant difference in the choice of career pathway based on ethnicity. Scholars argue that though culture affects the perception of individuals regarding the barriers to pursue a particular career, race or ethnicity does not eventually make a significant difference in their career decisions [21]. This study also showed no significant difference in career choice pathway with marital status. On the contrary, Iranian medical students' felt that marital status had an influence on their personal life and had a bearing on their career choice [22]. The absence of impact of marital status in this study could be attributed to the small number of married respondents among the study population.

Based on household income, majority of the students (68.24%) in our study population were hailing from families with a household income of < 10000 Malaysian ringgit (RM) which puts them into the mid-income and low-income strata of Malaysian society. On the other hand, medical studies are quite costly. In most Asian societies, family supports financially for education [20]. Thereby, students and their family may be in financial debt by the time the students graduate [23]. It may have an impact on the career choice of the respondents [24,25]. However, such an effect was not seen in our study. It maybe due to majority of the students getting financial aid from the government or other sponsorship bodies. Scholars agree that though income plays an influencing role in choosing a specific career path, interest and competency override financial constraints [26]. Thereby, supporting the findings of this study.

Further, the study results revealed that the year of training in the medical school had a statistically significant influence on the career pathway chosen. Students in Year 1 and Year 4 showed greater propensity for deviation from usual career pathway when compared to students in the other years. Medical students in year 1 have little clinical experience and are more enthusiastic to seek different career pathways. Similarly at year 4, medical students maybe confident at venturing out to different career opportunities. Though at final year, most students again opted for traditional career pathways as they are faced with the harsh reality of the job market. However, across the years of academic training, the study population showed keenness to pursue higher education in various medical and surgical specialties. A similar trend to continue higher education was also reported among Iranian medical and dental students [22]. This shows the strong sense of professional belonging among the medical student population.

The authors would like to acknowledge some limitations despite implementing scientific rigor. This study relied on the observations from a single medical school which limits the generalizability of the results. Hence, a similar study on a larger population of students from both public and private medical schools in Malaysia is recommended. Besides, a cross-sectional study design with self-administered was employed. Researchers in future can use a qualitative study design to explore how gender and year of academic training affects the choice of career pathway of medical students in Malaysian context.

5. Conclusion

This study gives preliminary information on the career pathway plan among medical students in a private university in Malaysia. However, it may not reflect their final choice as it may change over time based on their financial commitments and experiences during internship. The results may help policy makers to plan strategies for the future in order to provide opportunities for the large number of young Malaysian medical graduates aspiring to take up specialization in various medical and surgical disciplines. One of the other hallmarks of this survey is the significant number of medical students looking at other non-traditional career pathways. Presently medical curriculum is focused on developing competencies aimed at quality patientcare. Hence, curriculum designers need to think out of the box to train future medical students with managerial and innovative skills beyond patient care for fulfilling alternative careers too.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declares that there is no conflict of interest.

Statement of ethical approval

This study has been approved by the Management and Science University Ethical Board (MSU-RMC-02/FR01/01/L1/015).

Statement of informed consent

An informed consent was taken from all the participants.

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