What Are The Attributes Among Malaysian Medical Students Towards Migrating Abroad? A Cross-Sectional Study

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Keywords: migrating, attributes, medical students, cross sectional study, Malaysia.

ABSTRACT

Brain drain of healthcare professionals is a global pandemic that equally affects Malaysia. Due to multiple 'push factors' in Malaysia and multiple 'pull factors' in the source country Malaysia is losing qualified doctors at an increasing rate. The study aims to determine the intention and attributes of Malaysian medical students towards migrating abroad. A cross sectional analytical study was carried out from August 2021 to October 2021 involving the medical students of Manipal University College Malaysia (MUCM), Malaysia. Purposeful sampling was applied in the selection of eligible participants. The total number of participants recruited was 168, majority form the clinical batches. Among the participants, 45.24% had a positive intention to migrate abroad, 19.64% did not want to migrate, while 35.41% were undecided. The significant 'pull factors' for migration were better quality of health care system and better quality of postgraduate education abroad. The significant 'push factors' were peer and family pressure and an unsatisfactory political system at home country. Females were significantly more interested in migrating abroad than males. As brain drain can bring about a negative impact on home country in all spheres, it is vital that the country takes active efforts to minimize the contributory causes and provide incentives that ensure satisfactory work environment for the medical doctors.

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INTRODUCTION

Migration has been part and parcel of human life with the numbers of people rising for a long time. Due to globalization, the versatility of work has expanded and energized the exploration for better openings outside the nation of birth [1]. International migration has steadily increased since the 1960s where over 5 million migrants have migrated between 2010 and 2015 in comparison to nearly 2.5 million in the 1960s [2]. A large percentage of those migrating are healthcare workers, making it a global health problem [3]. In the early 21st century, research and policy showed how the money spent on training physicians benefitted the receiving country and negatively impacted the sending country [4].

Brain-drain management is not an easy task. A 2014 study in Serbia showed over 80% of medical students considered emigration [5]. A similar study done in the same year in Ghana showed over 50% of students intended to migrate abroad [6]. There exist valid reasons for skilled laborers to leave their country. 'Push factors' could be poor motivation, poverty, unemployment, insecurity, and politics, while favorable immigration policies, good employment opportunities, a better work environment, higher salaries, and economic stability are possible 'pull factors' [7-9].

The Malaysian healthcare sector is becoming a competitive industry [10]. The workload on specialists has been rising in Malaysia, ergo, negatively affecting doctor's physical and mental wellbeing and their execution during work [11]. Another contributing factor is the higher availability of job vacancies in countries like the United Kingdom, Australia, New Zealand, and America [12-15]. Furthermore, the salaries in those foreign countries are found to be higher, pulling the medical professionals away [12-15]. Moreover, some countries provide excellent training, leading to good career advancement [12-15]. There are also cases where doctors decide to stay in their new country after they move to pursue their studies, as they become more comfortable with that system [16]. Also, healthcare professionals who plan to migrate are following their basic human rights [17].

As an approach to minimize this issue, several policies have been formulated for both the receiving and source country in order to reduce the effects on the source country [4]. These include policies for international recruitment of healthcare workers by WHO and the receiving countries, and to enhance collaboration between nations [18-19]. Some other approaches have been to use financial and non-financial gains to retain healthcare professionals [20-22]. The Ministry of Health came up with a number of measures to control the relocation of specialists, as an illustration, they have built up "private wards" in a number of government hospitals. This makes a difference by motivating doctors working abroad to return back to Malaysia and serve their nation. Despite this effort, migration continues to occur to a certain degree [10].

Lately due to Covid-19, doctors are being overworked, especially when the situation is not handled well [23]. This pushes doctors to opt for a better working environment, for example, by moving to Australia [24], where they can have more time for themselves [25]. Anxiety and depression were found to be increased among doctors [26]. Doctors are not always given the protection they need, leading to infections, some fatal [27]. This contributes to the idea and desire to migrate to a well-handled country such as New Zealand [27].

The data on this issue is usually limited, and incomplete where it exists [28]. To our knowledge, there is limited information regarding migration among health care professionals in Malaysia so far. To understand the migration trend, a survey of medical students will help, and this may also give a projection of 'brain drain' into the future, which in turn might assist in developing strategies to counteract it [29]. We aimed to determine the intention and attributes towards migrating abroad, and the factors associated with it among Malaysian medical students.

METHODS

Study Design and Setting

A cross-sectional analytical study was carried out at Muar and Melaka campus of Manipal university College Malaysia (MUCM), Malaysia from August to October 2021. MUCM is a private medical university-college that provides three science programs such as Bachelor of Medicine and Bachelor of Surgery (MBBS), Bachelor of Dentistry (BDS) and Foundation in Science (FIS) to both Malaysian students and international students. The study population chosen included both pre-clinical (Semester 1-5) and clinical (Semester 6-10) Malaysian nationality of MBBS program.

Sample size and Sampling

The sample size was estimated using Epi info, statistical software, version 7.2.5.0. Based on the pilot study that we performed with 30 participants, 43.3% of respondents aspired to migrate abroad. We considered margin of error 7%, population size of 1100 medical students. The minimum sample size calculated was 164. We included non-response rate of 10%, our final sample size was calculated as 189. Non-probability purposeful sampling was used. A self-administered online questionnaire was distributed to all Malaysian medical students attending both pre-clinical and clinical years. All participants were provided information sheet which included details of the study, and were provided written informed consent which emphasized the right for withdrawal by the participants.

The inclusion criteria for our study were Malaysian nationality, medical students of Manipal University college Malaysia who are above 18 years of age. We included those who gave their written informed consent for participation and completed the questionnaire. We excluded the students who were attending Bachelor of Dentistry and Foundation in Science programs, and international students.

Data collection

In our study, data were collected through online self-administered questionnaires that were circulated to participants via social media such as Instagram, WhatsApp, Facebook, etc. A follow up reminder was sent 3 days after the first administration.

The questionnaire was prepared in English language, and consisted of 4 sections aside. Section A consisted of the demographic details. Section B to D included the questions about migration history, intention and aspirations to migrate, and attributes towards migration. These parts were developed based on the validated questionnaires used previous studies [4]. Section B dwelled on the migration history of the participants thereby allowing us to look for any association between migratory perception and migration history. It also included the imperative question about the intent to migrate, of which the choices where Yes, No and Undecided. Section C dived into questions regarding aspirations to migrate providing us crucial information about the degree of their aspirations and the steps taken to meet the requirements to migrate. It also includes a question about how the COVID-19 pandemic influenced their migratory perception. Section D included the reasons for the decision of the respondents to either migrate or remain in Malaysia. Regarding the attributes of migration such as political factors, healthcare factors, peer/family pressure and postgraduate education, we categorized less important as scoring from 1-5, and more important as scoring from 6-10.

Data analysis

The data collected were compiled and then processed using Microsoft Excel. It was then statistically analyzed using Epi Info version 7.2. The frequency and percentage were calculated for categorical data. For quantitative variables, mean and standard deviation were calculated. For the attributes on migration, we calculated the median, first quartile and third quartile. We also used Chi-square test and Fisher's exact test to determine the factors associated with intention to migrate abroad. The factors (independent variables) included gender, religion, relationship status, average family income, family size, migration history, family living abroad, political factors, peer or family pressure, healthcare system abroad, and post-graduate graduation abroad. The significance level was determined as 0.05.

Ethical consideration

Ethical approval for our research was obtained from the Research and Ethics Committee of Manipal University College Malaysia (MUCM). Confidentiality of the participants' information was maintained and their privacy was ensured. Participation was completely voluntary and only those who gave their written informed consent were included in our study.

RESULTS

A total of 168 medical students participated, thereby giving us a response rate of 88.9%. Table 1 shows the demographic characteristics of the participants. Among the students, 80.95% were within 22-25 years of age, giving us a mean of 22.6. Majority of the respondents were females, 70.83%, while the remaining 70.83% were males. Out of the wide array of ethnicities in Malaysia, 54.17% of our participants were Indians, 23.81% of them were Chinese and the rest were Malays and other ethnicities. Considering majority of our responses came from the Indian ethnicity, respondents following Hindu religion were leading at 47.02% and 19.64% were Islam while the remaining were Buddhist, Christian and others. Our participants were mainly from the clinical year MBBS students (77.38%). 74.4% of them were single, and majority had a family size of 5-10 individuals. 46.43% of our respondents were from M40 who had a family income of RM 4360-9619, and 76.19% of them were from urban areas, large towns, or cities.

Table 2 shows the migration history among the students who participated in our study. The prevalence of students who had ever been abroad (outside Malaysia) before was 97.02%. Among the students, 58.33% of them have a family member, friend, or colleague who is a medical doctor/healthcare worker presently is practicing abroad or has practiced abroad before. Among these, 58.16% of them were relatives to the respondents of the survey, followed by 22.45% as friend or colleagues and 13.27% were family members. 63.79% said that person was not influential in their decision to migrate abroad while only 36.21% said that they were influenced. Among the students, 45.24% mentioned they had intention to migrate while 35.12% could not decide.

Table 3 shows the aspirations to migrate abroad among medical students. Most of the students strongly agreed or agreed that they have considered the idea, they would like going abroad, there is a plan to migrate after graduation, and have enquired information about migrating abroad. Most of them mentioned they were not discouraged by the length of time it could take to acquire the necessary certification to practice abroad.

4 and 5 shows the attributes to migrate abroad and the attributes to not migrate abroad among medical students. Among the attributes to migrate abroad, students favored professional satisfaction, quality of training abroad, job salary, healthcare system abroad, and post graduate education. Among the attributes to not migrate abroad, students favored family ties in Malaysia and desire to serve the nation.

Table 6 shows a statistically significant association between gender and intention to migrate. 31.25% of male students showed intention to migrate while 51.26% of female showed the same (P=0.004). However, there were no statistically significant associations between demographic characteristics such as gender, religion, and intention to migrate among medical students.

Table 7 shows no statistically significant association between intention to migrate and whether students have ever been abroad and had family member, friend, or colleague practicing healthcare abroad.

Table 8 shows significant associations between intention to migrate and attributes for migration such as political factor, post graduate education, healthcare system, peer or family pressure. The students who agreed that post graduate education, healthcare system, peer or family pressure were more important had shown their intention to migrate ($P<0.05$).

Table 1. Demographic characteristics of the participants (n=168)

Variable	N (%)
Age	
<22	31 (18.45%)
22-25	136 (80.95%)
>25	1 (0.60%)
Mean age	22.6 (1.4)
Minimum- maximum	19-27
Gender	
Male	48 (28.57%)
Female	119 (70.83%)
Others	1 (0.60%)
Ethnicity	
Malay	26 (15.48%)
Chinese	40 (23.81%)
Indian	91 (54.17%)
Others	11 (6.55%)
Religion	
Islam	33 (19.64%)
Hindu	79 (47.02%)
Christian	19 (11.31%)
Buddhist	30 (17.86%)
Others	7 (4.17%)
Program Academic Year	
MBBS Preclinical Year	38 (22.62%)
MBBS Clinical year	130 (77.38%)
Marital Status	
Single	125 (74.40%)
In a relationship	42 (25.00%)
Married	1 (0.60%)
Family Income	
<RM 4360 (B40)	28 (16.67%)
>RM 4360-RM 9619 (M40)	78 (46.43%)
>RM 9619 (T20)	62 (36.90%)
Family Home	
Rural/Small town	40 (23.81%)
Urban/Large town/City	128 (76.19%)
Family Size	
<5	54 (32.53%)
5-10	110 (66.27%)
>10	2 (1.20%)

Table 2: Migration history among medical students

Questions	N (%)
Have you ever been abroad (outside Malaysia) before?	
Yes	163 (97.02%)
No	5 (2.98%)
Do you have a family member, friend, or colleague who is a medical doctor/healthcare worker who is presently practicing abroad or has practiced abroad before?	
Yes	98 (58.33%)
No	70 (41.67%)
If you answered "YES" to the above question, what is/was your relationship with this doctor/healthcare worker?	
A neighbor I know/heard of	6 (6.12%)
Family	13 (13.27%)
Friend/colleague	22 (22.45%)
Relative	57 (58.16%)
Would you say this person(s) was influential in your decision to migrate abroad?	
Yes	42 (36.21%)
No	74 (63.79%)
If you answered "YES" to the above question, how will you describe the influence of this person(s) on your career intentions?	
Extremely influential	7 (10.14%)
Very influential	17 (24.64%)
Somewhat influential	24 (34.78%)
Slightly influential	9 (13.04%)
Not at all influential	12 (17.4)
Intention to migrate	
Yes	76 (45.24%)
No	33 (19.64%)
Undecided	59 (35.12%)

Table 3: Aspirations to migrate abroad among medical students

Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I have given some consideration to the idea of going abroad to practice someday after graduation	51 (31.3%)	76 (46.6%)	25 (15.34%)	7 (4.29%)	4 (2.5%)
I have enquired about information on going abroad to practice	38 (23.0%)	69 (41.1%)	33 (20.0%)	20 (12.1%)	5 (3.03%)
I have most of the information I need about how to qualify to practice abroad	18 (10.9%)	37 (22.4%)	56 (33.9%)	41 (24.8%)	13 (7.9%)
I would like to move abroad to practice someday after graduation	40 (24.1%)	65 (39.2%)	43 (25.9%)	14 (8.4%)	4 (2.4%)
There is a plan in place for me to migrate abroad to practice after graduation	28 (16.9%)	53 (31.9%)	51 (30.7%)	22 (13.3%)	12 (7.2%)
I am not concerned that despite qualifying as a doctor in Malaysia I will still be required to pass qualifying examinations before I can practice abroad	24 (14.5%)	59 (35.5%)	42 (25.3%)	31 (18.7%)	10 (6.0%)
I am not discouraged by the length of time it could take to acquire the necessary certification to practice abroad	21 (12.7%)	69 (41.6%)	41 (24.7%)	27 (16.3%)	8 (4.8%)
My decision to migrate abroad has been influenced by COVID-19 pandemic	6 (3.6%)	17 (10.2%)	69 (41.6%)	48 (28.9%)	26 (15.7%)

Table 4: Attributes to migrate abroad among medical students

Variable	Median (Q1, Q3)	Min - Max
Quality of training life abroad	7 (3.25, 9.0)	1-10
Job Salary during training abroad	7 (3.0, 9.0)	1-10
Professional satisfaction	8 (4.0, 9.0)	1-10
Political factors	5 (3.0, 8.0)	1-10
Religious factors	3 (2.0, 5.0)	1-10
Healthcare system abroad	7 (3.0, 9.0)	1-10
Desire to settle abroad	5 (3.0, 9.0)	1-10
Peer/Family Pressure	2 (1.0, 5.0)	1-10
Post graduate Education	7 (3.25, 9.0)	1-10

Table 5: Attributes to not migrate abroad among medical students

Variable	**Median (Q1, Q3)**	**Min - Max**
Quality of training life Malaysia	6 (2.0, 8.0)	1-10
Political factors in Malaysia	5(2.0, 8.0)	1-10
Religious factors in Malaysia	4 (2.0, 7.0)	1-10
Professional satisfaction in Malaysia	5 (3.0, 8.0)	1-10
Desire to settle in Malaysia	5 (3.0, 9.0)	1-10
Family ties in Malaysia	7 (3.0, 10.0)	1-10
Desire to serve our patients/people/nation	7 (3.0, 9.0)	1-10
Adequate alternative financial support	6 (3.0, 8.25)	1-10
Healthcare system	6 (3.0, 9.0)	1-10

Table 6: Association between gender, religion, marital status, ethnicity, family size, average family income and the intent to migrate (n=168)

Variable	Intent to migrate			P-value
	Yes	No	Undecided	
Gender				
Male	15 (31.25%)	7 (14.58%)	26 (54.17%)	0.004[a]
Female	61 (51.26%)	26 (21.85%)	32 (26.89%)	
Religion				
Buddhist	16 (53.33%)	6 (20.00%)	8 (26.67%)	0.197[b]
Christian	9 (47.37%)	2 (10.53%)	8 (42.11%)	
Hindu	36 (45.57%)	11 (13.92%)	32 (40.51%)	
Islam	11 (33.33%)	12 (36.36%)	10 (30.30%)	
Others	4 (57.14%)	2 (28.57%)	1 (14.29%)	
Marital Status				
Married / In a relationship	25 (58.14%)	5 (11.63%)	13 (30.23%)	0.109[b]
Single	51 (40.80%)	28 (22.40%)	46 (36.80%)	
Ethnicity				
Malay	10 (38.46%)	7 (26.92%)	9 (34.62%)	0.171[b]
Chinese	9 (22.50%)	12 (30.00%)	19 (47.50%)	
Indian	12 (13.19%)	37 (40.66%)	42 (46.15%)	
Others	2 (18.18%)	3 (27.27%)	6 (54.55%)	
Average Family Income				
< RM 4360 (B40)	11 (39.29%)	6 (21.43%)	11 (39.29%)	0.137[a]
> RM 4360 – 9619 (M40)	29 (37.18%)	19 (24.36%)	30 (38.46%)	
> RM 9619 (T20)	36 (12.9%)	8 (29.03%)	18 (58.06%)	
Family Size				
<5	30 (55.56%)	8 (14.81%)	16 (29.63%)	0.167[a]
>5	45 (40.18%)	25 (22.32%)	42 (37.30%)	

[a]Chi-square test; [b]Fisher-exact test

Table 7: Association between migration history and intent to migrate abroad

Variable	Intent To Migrate			P Value
	Yes	No	Undecided	
Have you ever been abroad (outside Malaysia) before?				
Yes	74 (45.40%)	32 (19.63%)	57 (34.97%)	0.999[b]
No	2 (40.00%)	1 (20.00%)	2 (40.00%)	
Do you have a family member, friend, or colleague who is a medical doctor/healthcare worker who is presently practicing abroad or has practiced abroad before?				
Yes	48 (48.98%)	16 (16.33%)	34 (34.69%)	0.382[a]
No	28 (40.00%)	17 (24.29%)	25 (35.71%)	

[a]Chi-square test; [b]Fisher-exact test

Table 8: Association between attributes for migration and intent to migrate

Variable	Intent to migrate			P-value
	Yes	No	Undecided	
Political Factors				
Less important	33 (28.45%)	37 (31.90%)	46 (39.66%)	<0.001[a]
More important	0 (0.00%)	22 (42.31%)	30 (57.69%)	
Post graduate education				
Less important	32 (34.04%)	33 (35.11%)	29 (30.85%)	<0.001[a]
More important	44 (59.46%)	0 (0.00%)	30 (40.54%)	
Healthcare system				
Less important	32(34.41%)	33(35.48%)	28(30.11%)	<0.001[a]
More important	44(58.67%)	0(0.00%)	31(41.33%)	
Peer/Family pressure				
Less important	62(43.66%)	33(23.24%)	47(33.10%)	0.019 [a]
More important	14(53.84%)	0 (0.005)	12(46.15%)	

[a]Chi-square test; [b]Fisher-exact test

DISCUSSION

We conducted this study to determine the intention and attributes towards migrating abroad, and the factors associated with it among Malaysian medical students. We found that 45.24% of medical students showed an intention to migrate. Most of the respondents leaned towards migrating abroad due to the various benefits present in other countries. A similar study about the international migration of Indian nurses supports our findings. It is a pilot study involving 448 nurses from four government-owned hospitals, eight private hospitals, four schools of nursing, and four colleges of nursing located in various parts of Delhi. In this study 63% intended to migrate. The contributing factor to the intention to migrate is higher income [30]. In addition, another study found similar results. It is a cross-sectional study on the international migration from public health care systems in Romania. The study consists of 45 respondents of various medical specialties in Bucharest Hospital, Romania. In this study, the health professionals preferred to migrate to developed countries such as the United Kingdom, Germany, Australia, and many more due to better salary, facilities, and professional development options. These factors pull the healthcare professionals to migrate [31]. Besides that, a cross-sectional study about reasons for migration among medical students from Karachi supported our study as well. It consists of final-year medical students from Aga Khan University (AKU) and Baqai University (BU) in Karachi. More than 95% of the students from AKU and over 65% of students from BU intended to migrate abroad. The major contributing factor in this study was the better quality of postgraduate medical education abroad [32].

Our study showed professional satisfaction being a major factor pushing students towards migrating with it having the highest median score of 8 (out of 10) under attributes to migrate abroad. Salaries, quality of training, and healthcare systems in foreign countries, along with post-graduate education were the other top reasons for that decision, all having a median score of 7 (out of 10). Family ties in Malaysia and the desire to serve the patients/people/nation had the highest median score of 7 (out of 10) for reasons not to migrate abroad. According to a study in Karachi, factors that encourage going abroad are quality of education, salary structure, and work environment [32]. Other studies too have shown that medical professionals like doctors migrate from developing nations to wealthier countries to expand and develop their careers, or to improve their financial or social situations [33]. Religious factors ranked among the lowest with a median score of 3 (out of 10), and was second only to peer/family pressure which had a median score of 2 (out of 10), for attributes to migrate abroad. Similarly, for reasons not to migrate abroad, religious factors showed the least importance with a median score of 4 (out of 10). Another study also showed that only under 10% of students felt a religious factor played a role in their decision to migrate [34]. The lack of vacancies is also a push factor according to some studies, but our study didn't analyze this in detail [35,36]. In response to our question on how the COVID-19 pandemic has affected the participant's intention to migrate, we concluded that there was no significant effect of the pandemic on decisions to migrate abroad, as 41.6% of participants gave a neutral response and 44.6% reported no effect.

The main factors for the intention to migrate among medical students in our study are gender, family size, political factors, the opportunity of postgraduate education, peer/family pressure, and the quality of the healthcare system in Malaysia. Our study shows some effects of gender on the migration intention of the Malaysian medical students in Manipal. A significantly higher percentage of females (51.26%) aspired to migrate than males (31.25%). On the other hand, a cross-sectional study on Migration Intentions of Romanian Youth has shown that gender had no impact on the migration intention of Romanian teenagers [37]. Despite the family ties among the females in our study group, many pushed through it to achieve their dreams. There is a study that states women who feel like they are treated with less respect and dignity seem to have a higher tendency to migrate [38]. This distinction can be because of completely different socio-economic backgrounds seen across the two countries [39]. Irrespective of family size being more than five members or less than five members, at least 40.18% of participants decided to migrate. There could be many factors included in their decision to migrate like better work and education opportunities, better lifestyle, and a better economy in other countries they intend to migrate to.

42.31% of respondents believe that political factors are an important reason associated with their intention to migrate. This affirms the claims of Pitea and Hussain and Adserà et al that political and social components are imperative in migration intention [40,41]. Political doubt may drive youthful individuals either to 'voice' to alter, or to 'exit' and leave the nation for a much better place [42-44]. While another study supports the same result, they claim that political debasement, on both national and neighborhood levels too, has substantial impacts on potential vagrants, particularly those who are highly skilled. Political debasement works as both a direct and an indirect cause of migration [45].

In our study, there is a significant result between the intent to migrate and the opportunity of postgraduate education. We found that 59.46% of those who planned to migrate abroad claimed that post-graduate education was a more important cause for migration. A long-term solution would be to standardize the medical service with regard to pay, employment opportunities, and employment to match developing countries to those native graduates who yearn to migrate too [46]. A scientific review on the topic has collectively urged motivation-building endeavors like financial rewards, career development opportunities, continuous skillful education, higher hospital infrastructure/resources, and enhancements in overall hospital management as means to stall the migration of professionals [47]. It is time-intensive but would help the country in the future.

In our study, out of 76 respondents who planned to migrate abroad, 57.9% of them found the better healthcare systems abroad a significantly important factor for their decision to migrate. This can be chiefly due to the increased workload among doctors in Malaysia [11]. Malaysia incorporates a two-tiered system of healthcare service: a government-funded public sector, and a thriving private-sector [48]. Among the clinical specialists, the majority of them work in private sector and most of those centers are in urban areas. This decrease in the number of doctors within the government hospitals causes a rise in the workload of the doctors remaining [10]. The rise in the culture of migration of doctors will further worsen this problem. Studies done in different countries like Pakistan, show similar findings. A cross-sectional study among medical students in Pakistan showed that a considerable portion of those who planned to migrate abroad, did so because of an improved health care system abroad [49].

Out of 76 respondents who planned to migrate abroad 81.6% of them found peer and family pressure a less important cause for their decision to migrate abroad. Their decision was less influenced by their social circle. How family and peers influence the decision of individuals to migrate abroad has not been addressed in previous researches in Malaysian. Research from countries Nigeria, Pakistan, and other countries provides inconsistent results [50]. A cross-sectional study among medical students in Pakistan found that only 11% of students planned to migrate abroad due to family influence, while 47% stated that family bound them to stay in their country [49]. Peer pressure and role modeling are significant factors that contribute to migrating abroad as shown by a study in Agha Khan University Medical College (AKUMC) in Karachi, Pakistan. Here it was found that two-thirds of the faculty at AKUMC were educated abroad [51]. Several other researches prior to this have also shown that family and friends can influence decisions to follow the best career pathway [1]. The NELM theory highlights that the family, individuals personal, and social network is the center of the decision to migrate [4]. This is shown to be true in multiple researches. [52-54]

The sampling method used was convenience sampling which allows a chance of selection bias, this may pose a problem in our methodology. Cross-sectional studies like ours have other inherent weaknesses such as being susceptible to non-response and recall biases, it is also difficult to make causal inferences. Further, as the study was conducted in a private medical college and only at one point in time, generalizing the data may prove difficult.

Future studies could dive into more detail regarding the reasons for migration. Face to face interviews would be ideal for the collection of data, unfortunately this study was limited to a WhatsApp questionnaire due to COVID restrictions. This also had the added issue of a high rate of non-responses leading to a small sample size. The study could also have included medical students from other universities for a better understanding of the factors. The study we have

conducted appears to be on an important issue in Malaysia, therefore we hope we have inspired researchers to conduct further studies to help understand the situation and better solve this issue.

CONCLUSION

The study has shown that 45% of medical students at our medical university intended to migrate, while 35% remain undecided. Our study showed professional satisfaction being a major factor pulling students towards migrating. Family ties in Malaysia and the desire to serve the patients/people/nation were found to be the main reasons for not choosing to migrate. Religious factors ranked among the least important. Multiple other factors were also revealed to have significant contributions towards this decision. The brain-drain problem should be addressed holistically and urgently, considering the multitude of factors involved in this complex migration phenomenon, to pre

ACKNOWLEDGEMENT

The authors would firstly like to thank all the volunteers who willingly participated in our study. We also wish to extend our heartfelt gratitude to our supervisor, Professor Dr Htoo Htoo Kyaw Soe for her unending patience and guidance for us throughout the conduct of the research. We also would like to thank the Dean of Manipal University College Malaysia (MUCM) Prof Dr Jayakumar Gurusamy, Head of Department of Community Medicine Professor Dr Soe Moe, and our lecturer, Associate Professor Dr Sujata Khobragade and Assistant Professor Dr Mila Nu Nu Htay. We would also like to thank the Research and Ethics Committee, of MUCM for their approval and support of the study. Last but not least, we thank Awire, Eddy Ighele, Nadir Ali Syed, Farhad Khimani, Marie Andrades, Syeda Kausar Ali and Rose Paul for giving us permission to refer and use their questionnaire as a guide for our study.

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