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A Cross Sectional Study on the Knowledge, Attitude and Practice of Self Medication Among Medical Students in Melaka Manipal Medical College

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Abstract

The study was done to evaluate the knowledge, attitude and practice of self-medication among medical students of Melaka Manipal Medical College. A pre-validated questionnaire was distributed among the medical students and 167 participants answered the questionnaire. Knowledge and attitude were expressed in percentage and divided into 3 categories, good, moderate and poor. Microsoft Excel and Epi-info were used to analyse the data. Among the 167 participants, 104 (62.3%) were females and 63 (37.7%) were males. The mean age in years was 22.5 ± 1. Majority of the participants, 128 (76.7%), practiced self-medication in the past 2 years while 39 (23.4%) did not. They acquire their drugs mainly from medical stores and their source of information is mainly previous prescription. The participants found self-medication to be time saving and they do not find it necessary to visit the doctor for minor illness. They also find it easy and convenient and a quick relief to their symptoms. The important disadvantages found among them were the risk of adverse effects and the risk of using wrong drugs. The most common indications for self-medication were to relieve symptoms of cough, cold and sore throat, followed by fever and headache. Analgesics and lozenges were the most common drug used among the participants. Majority of the participants had moderate knowledge, 48% and good attitude, 42.5% towards self-medication. The study showed that practice of self-medication is common among medical students and that knowledge and attitude plays a role in it.

Keywords

Self Medication, Malaysia, Medical Students, Knowledge, Attitude, Practice

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1. Introduction

Health is defined by the WHO as a “State of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.” [1] Living in the 21st century the public uses a lot of drugs and interventions to manage their health. And with the access to a vast amount of knowledge over the internet and from various other modalities a lot of people tend to self-medicate themselves instead of going to a qualified healthcare professional for their medical needs. Self-medication is the selection and use of medicines by individuals to treat self-recognised illnesses or symptoms. [2] It has been observed in previous studies that the concept of treating one’s own illnesses without going through the different levels of healthcare institutions that patients normally follow is deep-rooted in the culture of medical profession and is acquired as early as when aspiring physicians are medical students. [3] This has become a great problem because it raises the concerns of incorrect diagnosis,

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drug reactions and antibiotic resistance. Self-medication is a global phenomenon and it is prevalent in every age group. [4] Prevalence of self-medication has been found to vary in medical students of different countries in earlier studies undertaken to ascertain the self-medication practice among medical students. [5-8] Most of such published studies have been conducted in countries other than Malaysia. The extent of the problem in this country remains unevaluated.

For many years self-medication was considered to be unnecessary and dangerous. However, it is now an important aspect of healthcare and accounts to a major component of how the public access the medications. Cautious use of over the counter medications is now considered to be safe as if reduces the burden on the healthcare system of a country. In contrast, irresponsible or irrational SM is discouraged as it may not only harm the patient in the form of adverse drug reactions (ADRs) or medication-related problems (MRPs), but may also increase the direct costs, including the cost of treatment and hospital admission. [4] There are a variety of reasons for self-medication. But the main ones are financial constrains (common in those countries where the individual has to pay direct cost for treating the condition), non-regulated practices concerning sale of prescription drugs, and the long waiting times when visiting a healthcare institution. Familial practise of self-medication predisposes an individual to self-medicate as it reduces the stigma related with it. Therefore, it is important to educate the parents on the issue. Since medical students will in the future be prescribing physicians it is important to evaluate the beliefs of the students and mould them in such a manner so that they would follow responsible and ethical guidelines regarding drugs and encourage their patients to follow suit. [4]

The objective of this study is to evaluate the extent of self-medication practices among the students in Melaka Manipal Medical College. This study is expected to provide data on the prevalence and to educate the students on the rational use of drugs and the proper use of medications. As future healthcare providers the medical students have to be cautious when practicing self-medication and limit it only to over the counter medications. It is important to get proper medical advice even in minor illnesses as the irrational and inappropriate use of medicines can lead to far greater complications as compared to a rather simple inconvenience of visiting a doctor.

2. Methodology

2.1. Study Design

The study design selected was a questionnaire-based cross-sectional study to evaluate the knowledge, attitude and prevalence of self-medication practices among medical students.

2.2. Study Setting, Study Time and Study Population

This research includes the medical students from Melaka Manipal Medical College (MMMC) in the Melaka and Muar campus. The research was conducted in a duration of six weeks, from May 2018 until June 2018. This study includes the medical students of Batch 34, 35, 36 and 37 currently in the Bachelor of Medicine, Bachelor of Surgery (MBBS) course in MMMC Muar and Melaka campus.

2.3. Sample Size and Sampling

The sample size for this research was calculated using the finite population proportion formula. [9]

$$n = \frac{Np(1-p)z^2_{1-\frac{\alpha}{2}}}{d^2(N-1) + p(1-p)z^2_{1-\frac{\alpha}{2}}}$$

Where,

Population size, N = 800	Proportion, p = 0.885
Error, d = 0.05	Alpha, α = 0.05
Minimum number = 131	n = sample size

Reference book: Wayne W., D. (1995). Biostatistics: A Foundation of Analysis in the Health Sciences (6th ed.). John Wiley & Sons, Inc., 180.

Adjustment for non-response was done using this formula with a study population of 800 which include all the batches in MMMC (34, 35, 36, and 37).

$$n_{final} = \frac{n_{calculated}}{1 - nonresponse\%}$$

The previous study stated a prevalence of 88.5% which is the proportion in this formula as 0.885. A level of error of 0.05 and the alpha is 0.05. These values are inserted into the Finite Population Proportion formula through N4 studies app and the sample size was calculated. The minimum number obtained is 131 but with a non-response rate of 30%, the sample size selected for this research including the non-response is 188 which is rounded off to 200 as the final sample size.

Non-probability sampling which is convenience sampling was used. A sample of 200 students from MBBS Batch 34, 35, 36 and 37 who were present on the day of data collection and were willing to give their written informed consent were drawn as the sampling size. Subjects were chosen based on accessibility, thus only MBBS students in Muar and Melaka campus were considered as it was convenient and easier to reach them. Students who practiced self-medication in the past two years were included in this study. Students who were not willing to give their informed consent and were absent on the day of data collection were excluded from this study.

2.4. Data Collection

Data was collected using a self-administered questionnaire containing 16 questions. It was distributed among 3rd and 4th year students of the MBBS program of Melaka Manipal Medical College in Muar Campus after getting permission from the ethics committee of the college.

The questionnaire was prepared by combining two pre-validated questionnaires from previous studies by (Sankdia, et al. 2017) and (Klemenc-Ketis, Hladnik and Kersnik 2010). The questionnaire was in English language and consisted of a preliminary letter followed by the questions. The questionnaire contained 4 questions on basic demographic data and 3 on practice of self-medication, while the rest of the questions were on the knowledge and attitude about self-medication. The questionnaire composed of both closed-ended and open-ended questions. 5-point Likert scale was used to assess the participants' knowledge and attitude regarding self-medication. The scale ranged from 1 indicating strongly disagree to 5 indicating strongly agree.

2.5. Data Processing and Analysis

Data processing was done using Microsoft excel. Data analysis was done using Epi Info 7 by Centre for Disease Control. Descriptive data was summarized as frequencies and percentages using Microsoft Excel and Microsoft Word.

2.6. Ethics

The objectives of this study were briefed to the participants. Participants were given the freedom to decide if they want to voluntarily participate in the study. A written informed consent was given to those who were willing to participate. Participants were allowed to withdraw from the study at any time. Their confidentiality will be kept private hence no personal details will be exposed. The study protocol was reviewed and approved by the Institutional Ethics Committee of Melaka Manipal Medical College.

3. Results

Table 1. Sociodemographic characteristics of medical students.

Variables	n (%)
Age	
≤22	98 (58.7%)
≥23	69 (41.3%)
Mean (SD)	22.5 (1.0)
Gender	
Females	104 (62.3%)
Males	63 (37.7%)
Ethnicity	
Chinese	50 (29.9%)
Indian	73 (43.7%)
Malay	30 (18.0%)
Others	14 (8.4%)

There was a total of 167 participants. The non-response rate was 11.2%. Among the total 167 participants, 104 (62.3%) were females and 63 (37.7%) were males. The age of the participants was between 18-27 years old. 98 (58.7%) of them were 22 years old and below and 69 (41.3%) of them were above 22 years old. The mean age of the participants was 22.5 ± 1. For ethnicity, the highest number of participants were Indians which were 73 (43.7%) of them, followed by Chinese which were 50 (29.9%), followed by Malay which were 30 (18%) and lastly, other ethnicities which were 14 (8.4%) of them.

Table 2. Practice of self-medication in the past 2 years among medical students.

Self-Medicated	Frequency (N)	Percent (%)
Yes	128	76.7%
No	39	23.4%

Among the total of 167 participants, 128 (76.7%) of them practice self-medication while 39 (23.4%) do not.

Table 1. Source of drugs.

Source-of-drugs	Frequency	Percent
Doctor-parents	13	10.2%
Family-doctors	13	10.2%
Home	10	7.8%
Medical store	92	71.9%

The source of drug that is most common among medical students that self-medicate themselves are medical stores, 71.9%, followed by parents that are doctors and family doctors, 10.2%.

Table 2. Source of information of drugs.

Source of information	Frequency	Percent
Classroom teaching	17	13.3%
Internet	24	18.8%
Previous prescription	83	64.8%
Textbook	4	3.1%

The most common source of information among medical students is previous prescription, 64.8%, followed by internet, 18.8% and classroom teaching, 13.3%.

Table 3. Reasons for self-medication.

Reasons	Frequency	Percentage (%)
No need to visit the doctor for minor illness	100	18.1
Quick relief	85	15.4
Time saving	171	31.0
Confidence on your knowledge about medicines	25	4.5

Reasons	Frequency	Percentage (%)
Economical	34	6.2
Ease and convenience	91	16.5
Learning opportunity	8	1.4
Crowd avoidance	38	6.9
*multiple answers		

The most common reason among medical students to self-medicate themselves is that it is time saving, 31%, followed by not finding it necessary to visit the doctor for minor illness, 18.1%. Self-medication is more easy and convenient, 16.5% and quick relief, 15.4% are also quite common reasons.

Table 4. Reasons against self-medications.

Reasons	Frequency	Percentage (%)
Lack of knowledge about medicines	82	18.1
Risk of adverse effects	92	20.3
Risk of using wrong drugs	90	19.8
Risk of misdiagnosing	73	16.1
Risk of drug dependence	44	9.7
Risk of using drugs wrongly	73	16.1
*multiple answers		

The most important reason against self-medication are the risk of adverse effects, 20.3%, followed by risk of using wrong drugs, 19.8%. Other reasons that are common are lack of knowledge about medicines, 18.1%, risk of misdiagnosing, 16.1% and risk of using drugs wrongly, 16.1%.

Table 5. Indication for self-medications.

Indications	Frequency	Percentage (%)
Headache	96	17.8
Fever	103	19.1
Cough, cold, sore throat	104	19.3
Stomach ache	51	9.5
Menstrual symptoms	47	8.7
Vomiting	33	6.1
Diarrhoea	57	10.6
Ocular symptoms	7	1.3
Skin Symptoms	37	6.9
Others	4	0.7
*multiple answers		

The most common indication for self-medication is cough, cold, sore throat, 19.3%, followed very closely by fever, 19.1%. Other common indications are headache, 17.8%, diarrhoea 10.6% and stomach ache, 9.5%.

Table 6. Type of drug used for self-medication.

Drugs	Frequency	Percentage (%)
Analgesics	107	28.5
Antimicrobials	30	8.0
Multivitamins	65	17.3
Antispasmodics	25	6.7
Decongestants	69	15.7
Lozenges	81	21.6
Others	8	2.1
*multiple answers		

The drugs most commonly used by medical students are analgesics, 28.5% and lozenges, 21.6%.

3.1. Knowledge and Attitude

Table 7. Frequency of categories of knowledge and attitude.

Variables	n (%)
Knowledge category	
Good	51 (30.6%)
Moderate	80 (48.0%)
Poor	36 (21.6%)
Attitude category	
Good	71 (42.5%)
Moderate	63 (37.7%)
Poor	33 (19.8%)

Among the total of 167 participants, 51 (30.6%) have good knowledge, 80 (48.6%) have moderate knowledge and 36 (21.6%) have poor knowledge about self-medication. Moderate knowledge has the highest frequency. For attitude, 71 (42.5%) have good attitude, 63 (37.7%) have moderate attitude and 33 (19.8%) have poor attitude regarding self-medication.

Table 8. Association between gender, age, ethnicity and knowledge towards self-medication.

Independent variables	Knowledge Percentage Mean (SD)	T (df) / F (df_1, df_2)	P value
Gender			
Female	74.5 (16.1)	1.41 (165)	0.160
Male	70.5 (19.4)		
Age			
≥23	74.0 (18.7)	-0.57 (165)	0.567
≤22	72.3 (16.6)		
Ethnicity			
Indian	69.7 (16.4)	2.18 (3, 163)	0.092
Malay	73.3 (21.4)		
Others	81.0 (10.2)		
Chinese	(17.3)		

The knowledge percentage mean among females were 74.5 ± 16.1 and 70.5 ± 19.4 among males. P value, 0.16 is not significant. The knowledge percentage mean among those age 23 and above is 74 ± 18.7 and 72.3 ± 16.6 among those age 22 and below. P value, 0.567 is not significant. The knowledge percentage mean is 69.7 ± 16.4 among Indians, 73.3 ± 21.4 among Malays, 81 ± 10.2 among Others and 75.3 ± 17.3 among Chinese. P value, 0.092 is not significant.

Table 9. Association between gender, age, ethnicity and attitude towards self-medication.

Independent variables	Attitude Percentage Mean (SD)	T (df)/ F (df_1, df_2)	P value
Gender			
Female	41.2 (10.1)	-0.79 (165)	0.428
Male	42.4 (8.2)		
Age			
≥23	42.0 (9.4)	-0.38 (165)	0.707
≤22	41.4 (9.5)		
Race			
Indian	41.2 (10.6)	0.592 (3, 163)	0.621
Malay	40.3 (9.9)		
Others	42.4 (5.8)		
Chinese	42.9 (8.1)		

The attitude percentage mean among females were 41.2 ± 10.1 and 42.4 ± 8.2 among males. P value, 0.428 is not significant. The attitude percentage mean among those age 23 and above is 42 ± 9.4 and 41.4 ± 9.5 among those age 22 and below. P value, 0.707 is not significant. The attitude percentage mean is 41.2 ± 10.6 among Indians, 40.3 ± 9.9 among Malays, 42.4 ± 5.8 among Others and 42.9 ± 8.1 among Chinese. P value, 0.621 is not significant.

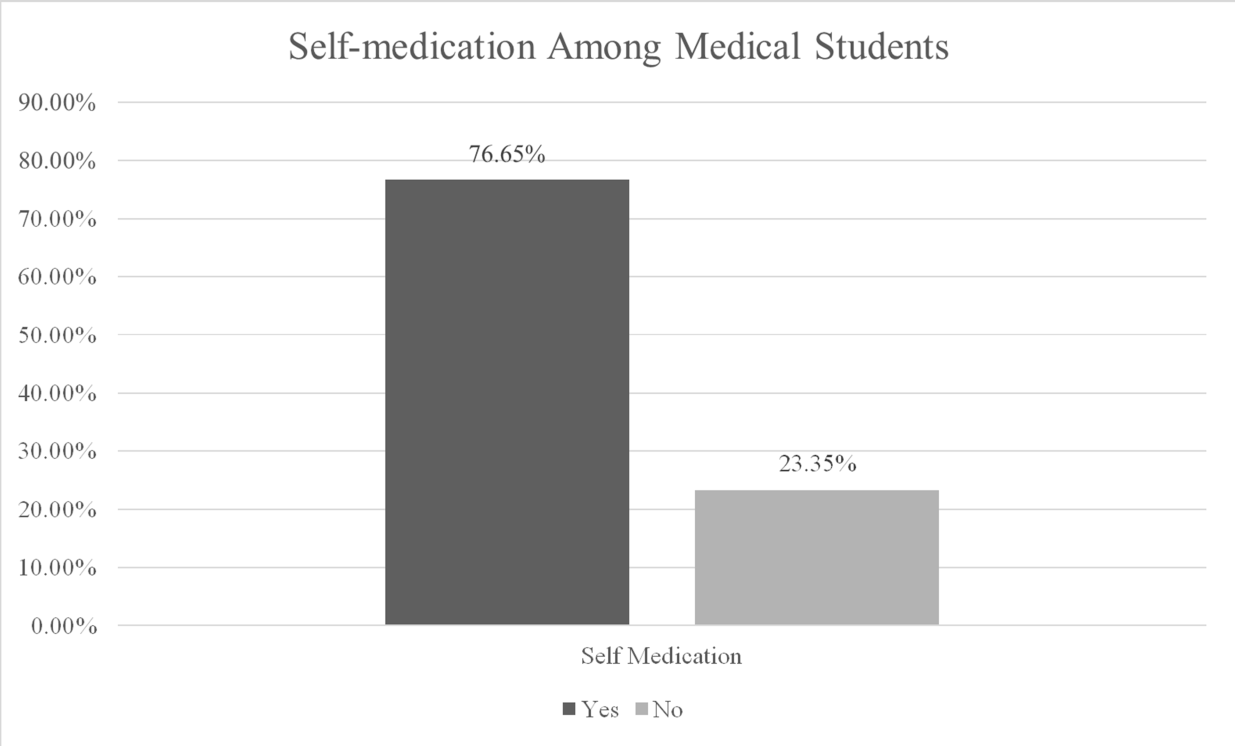

Figure 1. Self-medication among medical students.

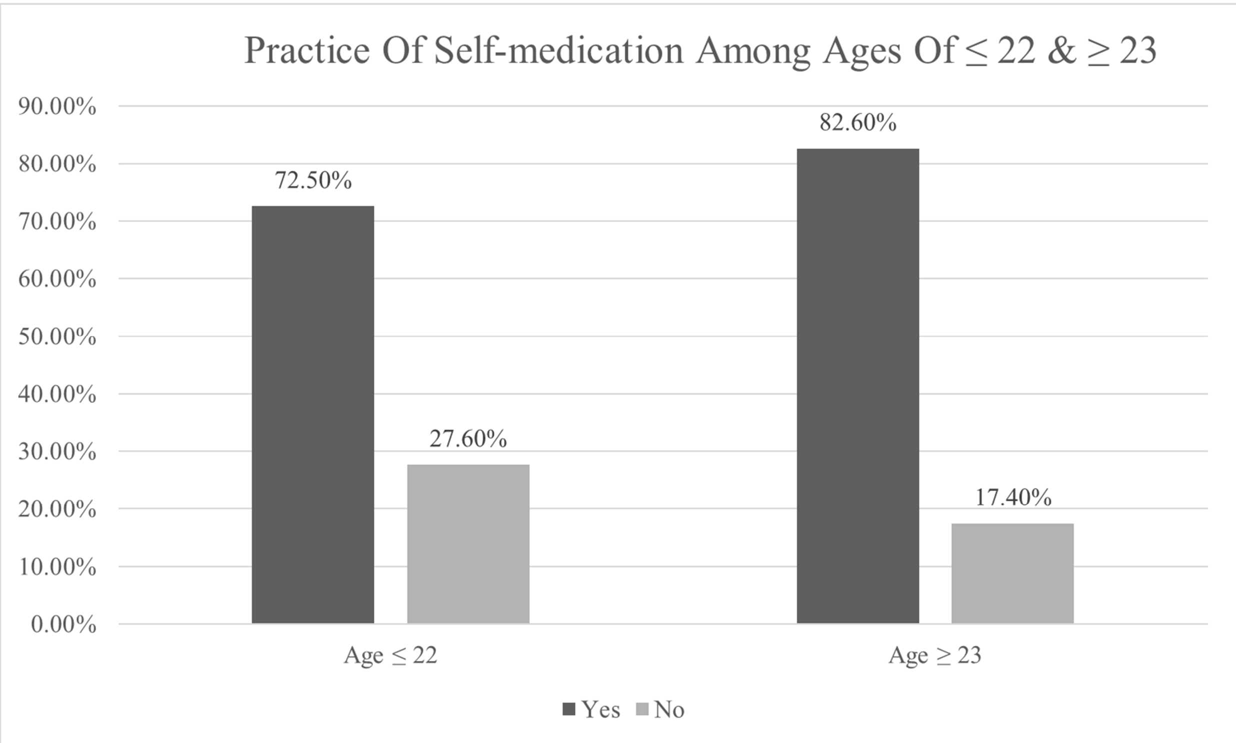

Figure 2. Self-medication practice among different age categories.

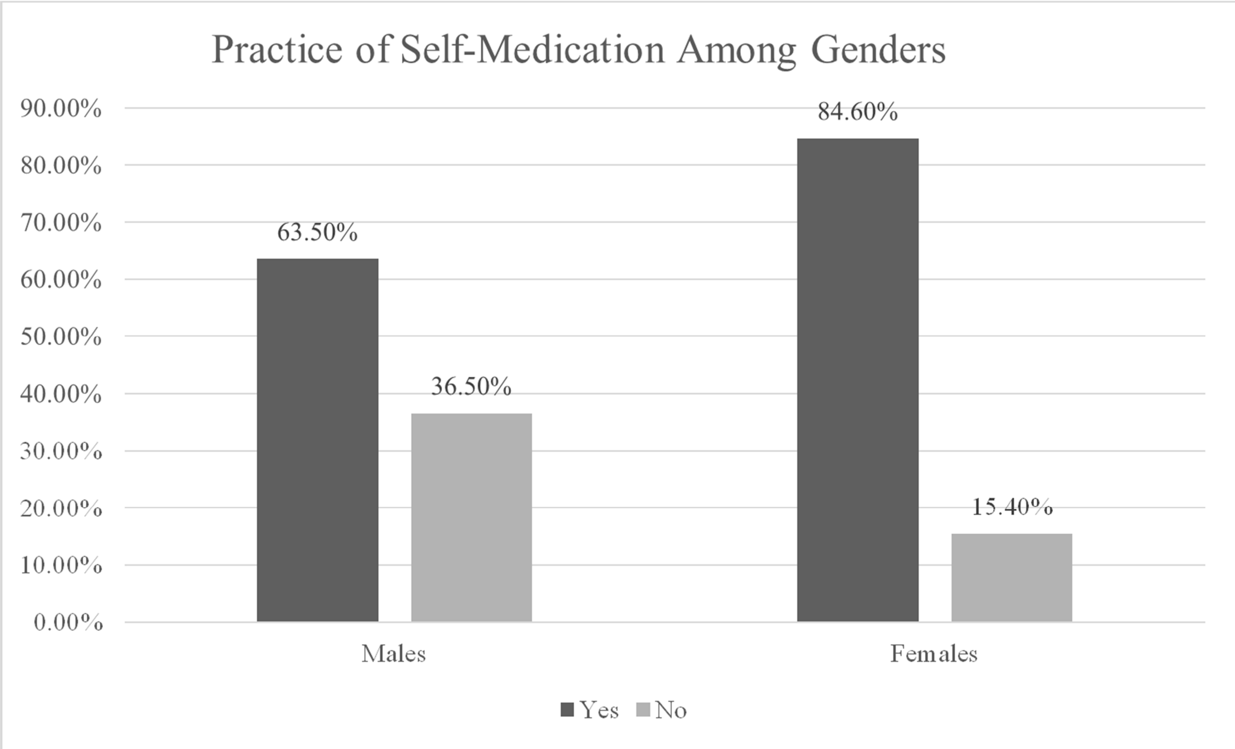

Figure 3. Practice of self-medication among genders.

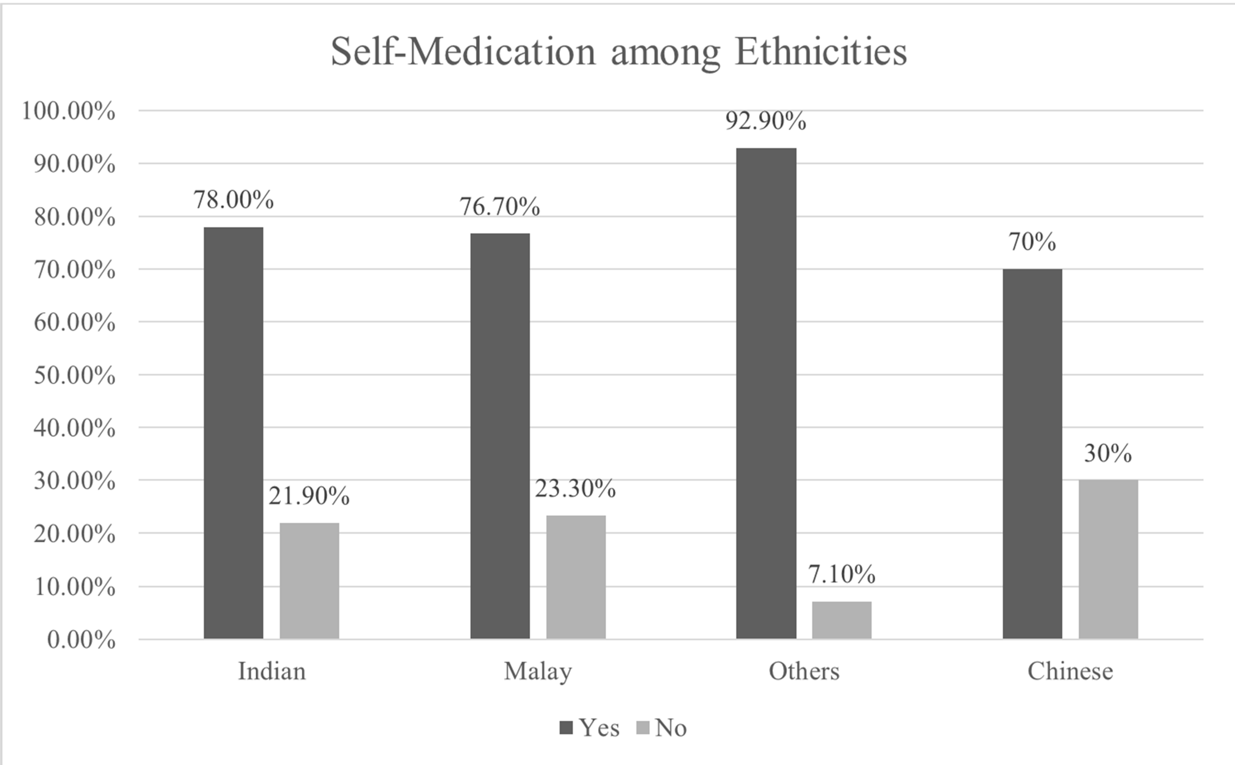

Figure 4. Practice of self-medication among different ethnicities.

3.2. Practice

Table 10. Association between gender, age, ethnicity and practice of self-medication.

Independent Variables	Practice of self-medication		OR (95% CI)	Chi-square	P value
	Yes n (%)	No n (%)			
Gender					
Female	88 (84.6%)	16 (15.4%)	3.2 (1.5, 6.6)	9.8	0.002
Male	40 (63.5%)	23 (36.5%)	ref		
Age					
≥23	57 (82.6%)	12 (17.4%)	1.8 (0.8, 3.9)	2.3	0.126
≤22	71 (72.5%)	27 (27.6%)	ref		
Ethnicity					
Indian	57 (78%)	16 (21.9%)	1.5 (0.7, 3.5)	1	0.31
Malay	23 (76.7%)	7 (23.3%)	1.4 (0.5, 4)	0.4	0.518
Others	13 (92.9%)	1 (7.1%)	5.6 (0.7, 46.5)	3	0.08
Chinese	35 (70%)	15 (30%)	ref		

Among the total of 167 participants, 88 (84.6%) female participants practice self-medication while 16 (15.4%) do not. Among the males, 40 (63.5%) practice self-medication while 23 (36.5%) do not. Females are 3.2 times more likely to practice self-medication than males. 95% CI (1.5, 6.6), Chi-square (9.8) and P value (0.002) is significant. Among those age 23 and above, 57 (82.6%) practice self-medication while 1 (17.4%) do not. 71 (72.5%) of those age 22 and below practice self-medication while 27 (27.6%) do not. Those age 23 and above are 1.8 times more likely to practice self-medication than those age 22 and below. 95% CI (0.8, 3.9), Chi-square (2.3) and P value (0.126) are not significant. Among the different ethnicities, 57 (78%) of Indians practice self-medication while 16 (21.9%) do not, 23 (76.7%) of Malays practice self-medication while 7 (23.3%) do not, 13 (92.9%) of others practice self-medication while 1 (7.1%) do not, 35 (70%) of Chinese practice self-medication while 15 (30%) do not. Chinese being the reference, Indians are 1.5 times more likely to practice self-medication than Chinese. Malays are 1.4 times more likely to practice self-medication than Chinese. Others are 5.6 times more likely to practice self-medication than Chinese. 95% CI (0.7, 3.5), Chi-square (1) and P value (0.31) are not significant for Indians. 95% CI (0.5, 4), Chi-square (0.4) and P value (0.518) are not significant for Malays as well. Lastly for Others, 95% CI (0.7, 46.5), Chi-square (3) and P value (0.08) are also not significant.

Table 11. Association between knowledge towards practice of self-medication.

Independent variables	Self-medication		OR (95% CI)	Chi-square	P value
	Yes n (%)	No n (%)			
Knowledge					
Good	40 (78.4)	11 (21.6)	1.2 (0.4, 3.3)	0.1	0.708
Moderate	61 (76.3)	19 (23.8)	1.1 (0.4, 2.7)	0.02	0.884
Poor (ref)	27 (75.0)	9 (25)			

Among the total of 167 participants, 40 (78.4%) of those with good knowledge practice self-medication while 11 (21.6%) do not. Those with good knowledge are 1.2 times more likely to practice self-medication than those with poor knowledge. 95% CI (0.4, 3.3), Chi-square (0.1) and P value (0.708) are not significant. 61 (76.3%) of those with moderate knowledge practice self-medication while 19 (23.8%) do not. Those with moderate knowledge are 1.1 times more likely to practice self-medication than those with poor knowledge. 95% CI (0.4, 2.7), Chi-square (0.02) and P value (0.884) are not significant. Among those with poor knowledge, 27 (75%) of them practice self-medication while 9 (25%) do not. Poor knowledge is the reference.

Table 12. Association between attitudes towards practice of self-medication.

Independent variables	Self-medication		OR (95% CI)	Chi-square	P value
	Yes n (%)	No n (%)			
Attitude					
Good	53 (74.7)	18 (25.4)	1.3 (0.5, 3.2)	0.3	0.596
Moderate	52 (82.5)	11 (17.5)	2.1 (0.8, 5.5)	2.1	0.148
Poor (ref)	23 (69.7)	10 (30.3)			

Among the total of 167 participants, 53 (74.7%) of those with good attitude practice self-medication while 18 (25.4%) do not. Those with good attitude are 1.3 times more likely to practice self-medication than those with poor attitude. 95% CI (0.5, 3.2), Chi-square (0.3) and P value (0.596) are not significant. 52 (82.5%) of those with moderate attitude practice self-medication while 11 (17.5%) do not. Those with moderate attitude are 2.1 times more likely to practice self-medication than those with poor attitude. 95% CI (0.8, 5.5), Chi-square (2.1) and P value (0.148) are not significant. Among those with poor attitude, 23 (69.7%) of them practice self-medication while 10 (30.3%) do not. Poor attitude are the reference.

Table 13. Association between age, gender, ethnicity, knowledge and attitude with self-medication.

Variables	OR (95% CI)	P-Value
Age Category (≥23/ ≤22)	2.8 (1.3, 6.2)	0.010
Gender (Male/Female)	0.4 (0.2, 0.9)	0.025
Ethnicity (Indian/Chinese)	1.8 (0.8, 4.0)	0.153
Ethnicity (Malay/Chinese)	1.2 (0.4, 3.6)	0.713
Ethnicity (Others/Chinese)	6.6 (0.8, 56.2)	0.082
K category (Moderate/Good)	1.4 (0.6, 3.1)	0.380
K category (Poor/Good)	1.8 (0.7, 4.9)	0.249
A category (Poor/Good)	1.3 (0.5, 3.2)	0.551
A category (Moderate/Good)	2.4 (1.1, 5.5)	0.033

After adjusting confounders using logistic regression, the P value, 0.01 of age becomes significant. The 95% CI, 1.3, 6.2, is also significant. Gender remains significant with the P value of 0.025 and 95% CI of 0.2, 0.9. P value, 0.153 and 95% CI, 0.8, 4.0 of Ethnicity (Indian/Chinese) is not significant. P value, 0.713 and 95% CI, 0.4, 3.6 of Ethnicity (Malay/Chinese) is not significant. P value, 0.082 and 95% CI, 0.8, 56.2 of ethnicity (Others/Chinese) is also not significant. K category represents the categories of knowledge, good, moderate and poor. P value, 0.38 and 95% CI, 0.6, 3.1, of K category (Moderate/Good) is not significant and P value, 0.249 and 95% CI, 0.7, 4.9 of K category (Poor/Good) is not significant as well. Lastly, A category represents the categories of attitude, good, moderate and poor. P value, 0.551 and 95% CI, 0.5, 3.2 of A category (Poor/Good) is not significant. However, P value, 0.033 and 95% CI, 1.1, 5.5 of A category (Moderate/Good) is significant.

4. Discussion

No studies on self-medication among students in Malaysia are available. It is generally expected that the prevalence of self-medication would be higher in medical students compared to the rest of the population as they are exposed to the knowledge about drugs and disease. However, studies from other countries give different views. In the present study the prevalence of self-medication was found to be 76.65% among the medical students. In contrast a previous study reported a prevalence of 81.5% (Maharashtra, India) among the general population. [10] Yet other studies reported prevalence rates of 59% in Pokhara Valley, Nepal [11], and 70% in Accra, Ghana. [12]

In this study, it was found that female students were more interested in taking Self-medication as compared to male students; this may be due to the fact that the female students are more hesitant to go to the hospital or outpatient department for minor illness. Similar findings were reported in the study done by (Sankdia, et al. 2017). [13]

It appears that the presence of medical subjects in faculties' curricula affects the attitude of students toward different aspects of self-medication, especially those regarding its safety. Hence, healthcare students are more aware of the possible risks of inappropriate and unsafe self-medication and therefore are more cautious. [6]

In this study students who self-medicated did so because its time saving (31%), because there was no need to visit the doctor for minor illnesses (18.1%) and because of the ease and convenience (16.5%). And those who didn't self-medicate gave risk of adverse effects (20.3%), risk of using wrong drugs (19.8%) and lack of knowledge about the medicines (18.1%) as the reasons. These results are consistent with the findings in the study done by (Sankdia, et al. 2017). [13]

It was also found that the major source of the drugs used for self-medication was medical stores; this may be due to ease and convenience, similar results were found in the studies done by (Sankdia, et al. 2017) [13] and (Klemenc-Ketis, et al. 2010). [6]

It was found that most of the students took self-medication for fever, cough, cold, sore throat and headaches. This may be due to fever, cough and cold being the major contributor to missed lectures and reduced attendance among the students. Headache is probably due to strain on eyes while studying and lack of sleep for which they had to take analgesics, most of the times it was self-administered. Similar findings were found in studies done by (Zafar, et al., 2008) [5] and (James, et al. 2006). [14]

Analgesics, lozenges and multivitamins were the most common groups of drugs used for self-medication in this study. It reflects the most common diseases treated by self-medication which were found to be fever, cough and cold. It is also compounded by the fact that they are easily available over the counter and many people have previous experience of using them before.

4.1. Knowledge

No significant association between knowledge and practice of self-medication was found. The respondents had a fairly good knowledge of the advantages, disadvantages and risks of self-medication. This is good grounds to promote self-medication for minor illnesses thus reducing the burden on the healthcare system. More emphasis should be placed on promoting the knowledge of the public and specially students regarding basic over the counter drugs.

4.2. Attitude

No significant association between attitude towards self-medication and practice of self-medication was found. However, many respondents had a fairly good attitude towards merits and limitations of self-medication. In general, the respondents felt that medical knowledge was making them more cautious about self-medication and many would prefer to seek a prescription. [14]

4.3. Logistic Regression

After adjusting the variables for confounding factors, it was found that older age, female gender, and moderately positive attitude towards self-medication are the factors that significantly affect its practice. Increasing medical knowledge as the students progress through each semester gives them more confidence to practice self-medication. Higher prevalence among female students may be due to female students being more hesitant to go to the hospital or outpatient department for minor illness as mentioned above. Moderate attitude towards self-medication may be due to inadequate knowledge about the pharmaceutical drugs, the diseases and diagnosis. Therefore, it is important to educate and emphasise the importance and methods of correctly diagnosis and using correct drugs for the common minor illnesses. This is important because as discussed self-medication is important to reduce the burden on the already struggling healthcare services and allow them to intervene in conditions that are not self-treatable.

4.4. Limitations

This study was carried out on semester 6^{th} and 7^{th} students of Melaka Manipal Medical College. Therefore, these results do not represent the self-medication practices among final year students of the Medical College who are more knowledgeable on the drugs, their use and diseases. The results of this study cannot be applied to the general population.

It would be interesting to investigate further whether increasing medical knowledge also affects the knowledge, attitude and practice of self-medication among medical students.

5. Conclusion

From this research project, study of relationship between the knowledge, attitude and practice of self-medication, it is seen that self-medication is very common among medical students especially among the females. Those in the age category of more than 23 years old, male and have moderate score for attitude have higher tendency to practise self-medication compared to others. There is a relationship between knowledge, attitude and the practice of self-medication. This basic result however is focus only for MMMC students. Therefore, this study can be a foundation for further researchers to explore the extend of self-medication on the growth of doctors in the future which is important for the country to develop better quality doctors. The authors would like to recommend that the Ministry of Health and the Ministry of Education of Malaysia include the basic health related knowledge as a part of curriculum in the university for a better prospective of individual as an asset for Malaysia.

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