



SELF-MEDICATION AMONG UNDERGRADUATE HEALTH SCIENCES STUDENTS IN A PRIVATE MEDICAL UNIVERSITY OF MALAYSIA – A CROSS-SECTIONAL STUDY

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Abstract

Background

Self-medication is an integral part of self-care where people use the medicine on their own initiatives with therapeutic intent but without professional advice or prescription. This study assessed the self-medication among 3rd and 4th year undergraduate health sciences students from a private medical university of Malaysia.

Methods

A cross-sectional study was conducted among 499 pharmacy, medical and dental students of 3rd and 4th year degree programme to assess their Self-Medication (SM) using 30 pre-validated questions by

convenient sampling method. Students' responses were measured at "Yes" and "No" scale for knowledge, sources of information and types of SM. However, 3-point Likert scales (Disagree=1, Neutral=2, Agree=3) were used to measure reasons and preventive methods for SM. Students' responses were entered in SPSS version 24 and quantitative analyses were performed using descriptive statistics and non-parametric tests at $p < 0.05$.

Interpretations and conclusion

Dental students had low knowledge about the indication (79.20%), active component (43.30%), side effects (65%) and dose, frequency, and duration of treatment (63.30%) compared to pharmacy and medical students. Students' mean scores were associated with their knowledge ($p < 0.001$), preventive methods ($p = 0.039$), sources of information ($p = 0.013$) and types of SM ($p = 0.018$) on Chi-Square test. Mann-Whitney U test revealed a significant difference between pharmacy and dental students' mean scores for knowledge ($p < 0.001$), sources ($p = 0.013$) and type of SM ($p = 0.048$); pharmacy and medical students' mean scores for types of SM ($p < 0.001$); dental and medical students' mean scores for knowledge ($p < 0.001$), reasons ($p = 0.048$) and methods to prevent SM ($p = 0.023$).

Study revealed a low knowledge of drug related components among dental followed by pharmacy students that requires a sensitization towards appropriate usage of drugs and better practice of self-medication needs among future healthcare providers.

Keywords: Self-medication, Undergraduate students, Health sciences, Malaysia, Cross-sectional study

Introduction

Self-medication is an integral part of self-care where people use the medicine on their own initiatives with therapeutic intent but without professional advice or prescription. According to the WHO, self-medication is the selection and use of medicines by an individual to treat self-recognized illness or symptoms. ^[1] Self-medication may mask the sign and symptoms of underlying disease, but it may complicate the problem and cause serious health hazards. Self-medication practice is mainly influenced by age, gender, socioeconomic factors, lifestyle, drug access, law, society, drug advertisement, professional education and status and self-care orientation. ^[2-3] Self-medication practices among health sciences students have been increasing due to easy access to information from drug indices, literatures, other student's diagnosis, and medication. ^[4-5]

Self-medication is practiced in both developed and developing countries, but it is very common in developing nations as many drugs are dispensed over the counter without prescription leading to irrational use of drugs. Studies from developing countries reported high prevalence of self-medication among medical and paramedical students. ^[6-9] Most common class of drugs that have been self-medicated by the students were NSAIDs, antipyretic, antibacterial, antidiarrheal, antacids, antiallergic, antitussive and antiemetic. ^[6,10] In context of Malaysia, studies are lacking related to self-medication assessment among health sciences students covering both genders. However, only female participants highlighted high prevalence of self-medication for the treatment of their minor ailments from a Malaysian study. ^[10] Due to lack of information related to SM practices among health sciences students in Malaysia and high prevalence of it in developing countries, the present study was conducted to assess the self-medication practices among undergraduate health sciences students in a private medical university of Malaysia.

Materials and Methods

Study design, location, and time frame

A cross-sectional, questionnaire-based study was conducted among 499 medical, dental and pharmacy students of 3rd and 4th year degree program at private medical college of Malaysia. This study was conducted for the duration of eight months from March 2019 to oct 2019.

Ethical approval, Study population, Sample size and Sampling technique

The study was approved by AIMST University Human Ethics Committee (AUHEC). The study was conducted among 3rd and 4th year students of medical, dental and pharmacy courses and sample size was calculated by using Raosoft sample size calculator at 95% confidence interval (CI); 50% proportion and 5% margin of error. The total study sample was calculated 450 students (Medical: 200; Dental: 110 and Pharmacy: 140) which was achieved by convenient sampling method.

Consent from students

Written consent was obtained from students who voluntarily agreed to participate in the study before it began.

Inclusion and Exclusion criteria

Only 3rd- and 4th-year students from medical, dental, and pharmacy programs were included in the study. Students with incomplete survey forms, 1st- and 2nd-year students from all three programs (due to limited academic and clinical exposure), and 5th-year medical and dental students (due to their clinical postings in another hospital during the study period) were excluded.

Formulation of self-medication questionnaire, scoring and validation

Self-medication (SM) among pharmacy, dental and medical students was assessed by using pre-validated questionnaire. Questions were developed after an extensive literature review related to self-medication assessment among health sciences students and the theme of the questions was scrutinized by different resources. ^[11-16] A total of 30 questions were designed and divided into 6 domains; Knowledge of medicine used for SM (4 questions), reasons for SM (10 questions), methods to prevent SM (5 questions), sources of information for SM (5 questions), common types of SM (6 questions), and SM for common illnesses.

Knowledge, sources of information and common types of self-medication were measured at 'Yes' and 'No' scale. Score one (1) was given to 'Yes' response while zero (0) for 'No' response. However, 3-point Likert scale (Disagree=1, Neutral=2, Agree=3) was used for reasons and preventive methods for self-medication.

The face and content validity of the questionnaire were evaluated by experts from the pharmacy, medical, and dental faculties of AIMST University. A pilot study involving 10% of the students was conducted to assess the questionnaire's suitability, and the Cronbach's alpha test was used to measure its internal consistency. The self-medication questionnaire showed Cronbach's alpha values ranging from 0.74 to 0.87, indicating good internal consistency.

Data collection and statistical analysis

A pre-validated questionnaire was distributed to the students and their responses were taken within 45 minutes. Data were entered into SPSS version 24 and found skewed at Shapiro-Wilk test. Descriptive statistics were used for quantitative analysis. Chi-square test determined the significant association between students' mean scores and self-medication domains. However, Mann-Whitney U test compared the mean scores between the groups. A significant level of $p < 0.05$ was used for all the analyses.

Results

Demographic characteristics of students

The mean age of the students was 22.73 ± 0.90 . Female students were greater in number [342 (68.5%)] of Chinese community (77.8%) followed by Indian (20.4%). More than two third of the students (77.2%) were residing in urban areas whose parents were neither linked with medical nor paramedical profession. About 70% of the students were hosteller followed by living outside (22.4%). Mostly the students had medical insurance with mean family income of RM 5991.76 $\pm$ 3076.78 (1 USD = RM 4.17).

Students' knowledge about self-medicated medicines

Descriptive statistics was used to determine the Pharmacy, Dental and Medical students' knowledge about self-medicated medicines. It was observed that dental students had low knowledge about the indication, active component, side effects and dose, frequency, and duration of treatment (DOT) compared to pharmacy and medical Students. However, medical students were more aware about the medication side effects compared to pharmacy and dental students (Figure I).

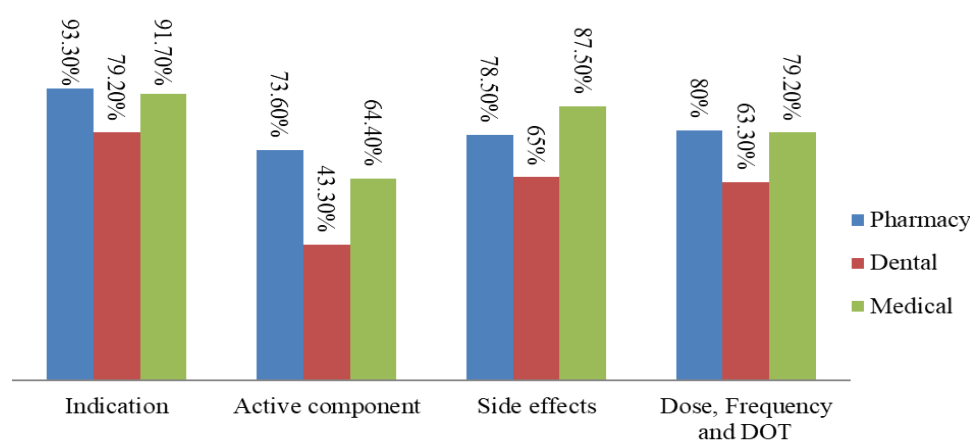


Figure I. Students' knowledge about self-medicated medicines (N=499)

Students' responses towards reasons for self-medication

Students from three courses were examined about the reasons for self-medication at 3-point Likert scale and their responses are presented in Table 1.

Table 1 Students' responses towards reasons for self-medication (N=499)

Statements	Responses n (%)		
	Disagree	Neutral	Agree
Treatment of minor illness	21 (4.2)	75 (15)	403 (80.8)
Previous experience or knowledge about disease and treatment	23 (4.6)	112 (22.4)	364 (72.9)
Personal convenience	43 (8.6)	188 (37.7)	268 (53.7)
Do not feel comfortable with physician	277 (55.5)	158 (31.7)	64 (12.8)
Time saving	78 (15.6)	186 (37.3)	235 (47.1)
Avoid consultation fees	124 (24.8)	179 (35.9)	196 (39.3)
Busy lifestyle	87 (17.4)	202 (40.5)	210 (42.1)
Self-medication works faster	153 (30.7)	256 (51.3)	90 (18)
For privacy	205 (41.1)	204 (40.9)	90 (18)
Self-medication is economical	72 (14.4)	234 (46.9)	193 (38.7)

Students' responses towards methods to prevent self-medication

Students' responses towards methods to prevent self-medication were measured at 3-point Likert scale and responses were analysed using descriptive statistics (Figure II).

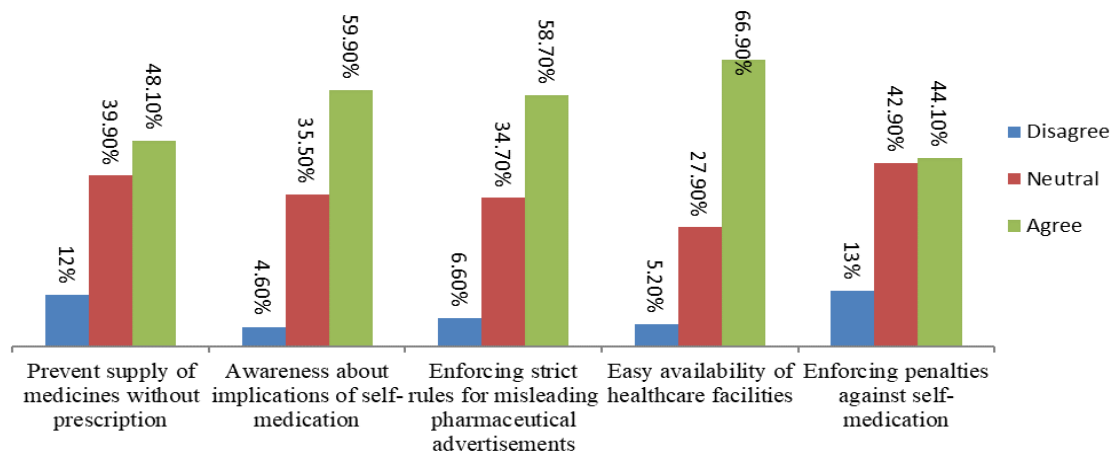


Figure II. Students' responses towards methods to prevent self-medication

Students' responses towards sources of information for self-medication

Students' responses towards sources of information for self-medication were measured at "Yes" and "No" scale. Mostly the students from three courses developed confidence towards self-medication due to their academic knowledge. However, a greater number of dental students received the information from previous prescription (84.20%), family/friends/relatives (75.80%) and pharmacists/nurses (70.80%) compared to pharmacy and medical students (Table 2).

Table 2 Students' responses towards sources of information for self-medication (N=499)

Source of Information	Pharmacy (n, %)	Dental (n, %)	Medical (n, %)
Family, Friends, Relatives (Yes)	62 (62.0%)	76 (75.8%)	69 (69.0%)
Pharmacists/Nurse (Yes)	60 (60.0%)	77 (77.0%)	59 (59.0%)
Previous Prescription for Same Illness (Yes)	69 (69.3%)	84 (84.2%)	76 (75.9%)
Academic Knowledge (Yes)	87 (87.0%)	80 (80.0%)	90 (90.3%)
Advertisement on TV/Internet (Yes)	46 (46.0%)	52 (51.7%)	54 (54.0%)

Students' response towards common types of self-medication

Students' responses towards common types of self-medication were measured at 'Yes' and 'No' scale. Mostly the students used Over the Counter (OTC) drugs for self-medication. However, only two third of the pharmacy students accepted the use of Traditional Chinese Medicine (TCM) whereas slightly more or less than two third of students denied taking slimming diet and remedies for muscle mass (Figure III).

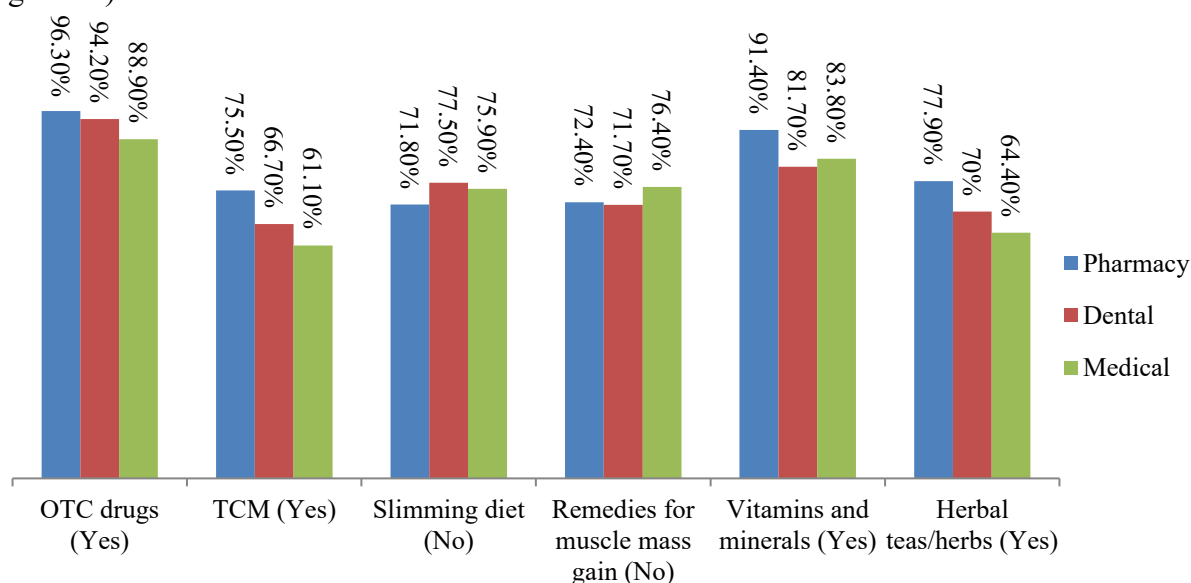


Figure III Students' responses towards common types of self-medication (N=499)

Students' responses towards illness for self-medication

Students' responses towards illnesses for self-medication were determined using descriptive analysis. It was found that most of the students did self-medication for fever followed by headache and flu/cough/cold. Students' response details are presented in Figure IV.

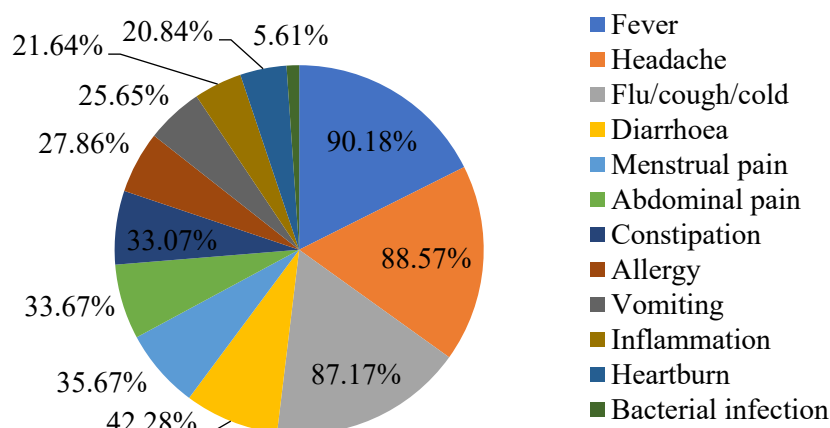


Figure IV Students' responses towards illness for self-medication

Students' domain wise mean scores for various domains of self-medication

Chi-square test was used to determine the significant association between students' mean scores and self-medication domains (Table 3).

Table 3 Students' mean scores for various domains of self-medication (N= 499)

Domains	Mean Score $\pm$ SD			
	Pharmacy	Dental	Medical	p-value*
Knowledge of medicine used for self-medication	3.25 $\pm$ 1.11	2.51 $\pm$ 1.37	3.23 $\pm$ 1.15	<0.001**
Reasons for self-medication	22.23 $\pm$ 3.95	22.61 $\pm$ 3.46	21.63 $\pm$ 4.04	0.081
Methods to prevent self-medication	12.38 $\pm$ 1.99	11.98 $\pm$ 2.18	12.56 $\pm$ 2.05	0.039**
Sources of Information for self-medication	3.26 $\pm$ 1.31	3.63 $\pm$ 1.14	3.50 $\pm$ 1.19	0.034**
Common types of self-medication	3.97 $\pm$ 1.25	3.63 $\pm$ 1.46	3.46 $\pm$ 1.35	0.018**

Comparison of students' means scores for self-medication domains between the groups

Students' mean scores for various domains of Self-Medication (SM) were compared using Mann-Whitney U test (Table 4).

Table 4 Comparison of students' mean scores for self-medication domains between the group (N=499)

Domain	Pharmacy	Dental	Medical	p-value (Pharmacy vs Dental)	p-value (Pharmacy vs Medical)	p-value (Dental vs Medical)
Knowledge of medicine used for SM	3.25 $\pm$ 1.11	2.51 $\pm$ 1.37	3.23 $\pm$ 1.15	< 0.001**	0.76	< 0.001**
Reasons for SM	22.23 $\pm$ 3.95	22.61 $\pm$ 3.46	21.63 $\pm$ 4.04	0.60	0.12	0.048**
Methods to prevent SM	12.38 $\pm$ 1.99	11.98 $\pm$ 2.18	12.56 $\pm$ 2.05	0.17	0.29	0.023**
Sources of information for SM	3.26 $\pm$ 1.31	3.63 $\pm$ 1.14	3.50 $\pm$ 1.19	0.013**	0.103	0.248
Common types of SM	3.97 $\pm$ 1.25	3.63 $\pm$ 1.46	3.46 $\pm$ 1.35	0.048**	< 0.001**	0.227

*Mann-Whitney U Test

** Significant at p<0.05 level (2-tailed)

Discussions

According to the International Pharmaceutical Federation^[17], self-medication is defined as the use of nonprescription medicines initiated by patients on their own. Self-medication represents a double-edged sword, possessing both merits and demerits. From a healthcare perspective, it offers potential benefits by reducing the burden on clinical services, as individuals managing minor illnesses on their own can decrease unnecessary visits to healthcare facilities. This, in turn, allows physicians to allocate more time and resources to patients with critical conditions. Moreover, self-medication can empower patients and facilitate the timely management of minor ailments. However, it also poses significant risks due to the potential for unknown adverse drug reactions, side effects, and complications associated with long-term use. Common practices under self-medication include the repeated use of the same medication based on previous prescriptions without medical consultation, or the use of leftover medicines, both of which can contribute to inappropriate drug use and potential health hazards^[18].

The findings of the present study reflect these complexities. A majority of the medical and pharmacy students were aware of the indication, side effects, dose, frequency, and duration of the used drugs compared to dental students which is similar to the findings from the studies conducted in India^[19] and Ethiopia^[20]. Whereas knowledge about the active component of the drug among the pharmacy and medical students was much higher in present study compared to the study conducted in India, where only one third of the medical students knew about active component of the drug.^[15] However, studies from Netherland^[21] and India^[6] supported the findings of present study in terms of knowledge about the side effects of the drug among the health sciences students.

Mostly the health sciences students reported using self-medication to treat their minor illnesses like the Indian and Bangladeshi students.^[5,22,23] However, self-medication was found to be low due to previous knowledge about disease and treatment were found low in previous studies.^[24,25,15] At the same time, slightly more than a half of the students agreed with the personal convenience and not having time or longer waiting time at physician as a reason for self-medication which is higher than the previous reportings.^[24, 26-28]

About half of the students agreed to prevent supply of medicines without prescription that might reduce the self-medication practices.^[12] More than a half of the students believed that self-medication may be prevented by increasing awareness about implication of self-medication which is in line with the studies conducted in India.^[1,29] More than half of the students agreed for enforcing strict rules for misleading pharmaceutical advertisement^[29] and easy availability of healthcare facilities^[1] might control the self-medication practices. However, less than a half of the students were agreed about enforcing the penalties to prevent self-medication practices.^[30]

Majority of the students developed confidence towards self-medication due to their academic knowledge.^[23,31] However, about half of the students obtained the drug use information from TV channels/Internet which is higher than the findings reported from one Indian study.^[22] Moreover, about two third of the students followed previous prescriptions as a source of information to treat the similar illnesses which is in accordance with the previous reporting from Nigeria^[25] and Bangladesh. = Furthermore, a significant number of students used OTC drugs and vitamins and minerals for self-medication similar to the previous studies conducted from UAE and Bangladesh.^[27,32] Most of the students did self-medication for the treatment of fever, headache and flu which is supported by the studies conducted in Bangladesh^[27], Ethiopia^[33, 34] and India^[1,35].

There was a significant association between students' mean scores and self-medication domains such as knowledge of medicine used for self-medication ($p<0.001$), method to prevent self-medication ($p=0.039$), sources of information for self-medication ($p=0.034$) and common types of self-medication ($p=0.018$). However, Mann-Whitney U test determined a significant difference between pharmacy and dental student for knowledge of medicine used for self-medication ($p<0.001$), Sources of information for self-medication ($p=0.013$) and common types of self-medication ($p=0.048$). The significant differences between dental and medical students were found more prominent for

knowledge of medicine used for self-medication ($p<0.001$), reasons for self-medication ($p=0.048$) and methods to prevent self-medication ($p=0.023$).

Conclusions

This study revealed that the self-medication practice was very common among health sciences students. High prevalence of self-medication was noticed with OTC drugs being the most used. Self-medication with incomplete knowledge should be avoided and the health sciences students who are the future healthcare providers should be educated about the demerits of taking the drugs without the consultation of qualified doctors. Study outcome suggests an urgent need of educational programs including modules of self-medication and rational drug use.

Limitations of the study

Like other studies, this study also had some limitations. Student participated in this study were selected only from on a private medical university in Malaysia due to restricted time frame. Therefore, study findings could not be generalised to entire university students' population of the country. Study analysed the self-reported data from respondents, therefore, response bias, under-reporting and over reporting of information regarding self-medication can be expected. Questionnaire distribution to all the student and getting their responses were not done at the same time and place due to their busy academic schedules. Hence, there was a probability of outflow of the questionnaire information to the student to be participated in the study later and their responses would be affected. This might have affected the accuracy of the study findings.

Conflict of Interest: The authors declare that there is no conflict of interest regarding the publication of this article.

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