QUEST INTERNATIONAL UNIVERSITY
Quest International Journal of Medical and Health Sciences – [Online]
ORIGINAL ARTICLE

Factors associated with the self-medication and consumption of non-prescription drugs and their practice: A cross-sectional study from Ipoh, Perak, Malaysia

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Information about the article:

Received: March 10, 2025
Accepted: June 19, 2025
Published online: July 1, 2025
DOI: https://doi.org/10.5281/zenodo.16612747

Publisher

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e-ISSN: 2636-9478

ABSTRACT

Introduction:
Self-medication involves using drugs without professional guidance and is widespread, often seen as a component of self-care and sharing medicine. While it reduces healthcare burden and boosts health awareness, it carries risks like incorrect diagnosis, drug resistance, and adverse effects. Globally promoted due to Rx-to-OTC switches, its practice in Malaysia, especially in Perak, is underresearched.

Methods:
A cross-sectional descriptive study was conducted from March 2024 to July 2024. A structured questionnaire was distributed online via Google Forms, to which 246 participants responded.

Results:
Most of the respondents were between 18 and 24 years old (63.4%). The majority of respondents were female (72.0%) and Malaysian (85.8%). Males used non-prescription drugs significantly ($p<0.05$) compared to females. Males were more likely than females to self-medicate for fever ($p<0.05$) and drowsiness ($p<0.01$).

Conclusion:
There is an urgent need for greater awareness and education about the dangers of self-medication, especially among students who are often under pressure and more likely to handle their health independently.

Keywords
Association, factors, gender, health, self-medication

Introduction

Self-medication involves using non-prescription drugs without professional consultation, offering benefits like rapid treatment access, reduced healthcare burden, and cost savings. Self-medication drugs are used to treat self-diagnosed illnesses without the consultation or surveillance of a health professional. Self-medication is rampantly used and often considered a component of self-care, and sharing medicine with family or friends. [1]

Self-medication is extremely helpful in developing and underdeveloped countries, as it reduces the need for medical consultations for mild illnesses, thereby decreasing the workload on medical services and decreasing waiting times for physicians. [2-4] Rational use of self-medication drugs can reduce demand for medical professionals and increase health awareness amongst the general population. [5]

However, there are always some health-related risk factors associated with self-medication. Polypharmacy, inaccurate diagnosis, improper dosage, drug dependency, bacterial resistance, adverse drug reaction, severe side effects, suboptimal treatment outcomes, and late diagnosis are seriously concerning issues [6-10]. The health effects of self-medication can be irreversible and increase manifold the treatment expenses. [11]

A global trend is evident in the promotion of self-medication from the late 1990s to the early 2000s. [12] The major contributory factor to the higher demand is the 'Rx-to-OTC switch', i.e., the transfer of well-established prescription medications (Rx) to over-the-counter (OTC) drugs. [13, 14]

Although research studies are available in different parts of the world, studies are lacking in Malaysia. This research aimed to explore the factors associated with the consumption of non-prescription drugs and their practice in the Perak state of Malaysia.

Methods

Study period, study design, and participants

This cross-sectional descriptive study was conducted from March 2024 to July 2024. A structured questionnaire was distributed online through Google Forms [15], where 246 participants responded to the questionnaire.

Study participants

Respondents aged 18 and above who were willing to participate, provided informed consent, and were included in this research.

Collection of data and a questionnaire

The respondents answered the questionnaire via Google Forms with 26 closed-ended questions with yes and no responses to obtain a more concrete result. The questionnaire consists of two sections. Section one is the demographic profile of the respondents which includes age, gender, nationality and ethnicity. There were two subparts in section two, where subpart A had 12 questions about the factors that influence self-medication, including health conditions, and subpart B had four questions related to factors that contribute to self-medication. Lastly, the third section contains six questions intended to assess the role of pharmacists in self-medication.

Independent variables

Age, gender, ethnicity, nationality, and years of study were considered independent variables.

Dependent variables

Knowledge, attitude, and practice of self-medication score.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS, version 26) was used for the statistical analysis. Descriptive statistics and chi-square test were performed. The p-value < 0.05 was considered statistically significant.

Ethical committee approval

Approval for ethics was obtained from the Joint Research Ethics Committee (JREC) before the commencement of the study. To maintain the confidentiality of participants, no unique identifiers, such as names, addresses, email addresses, or phone numbers, were collected. The informed consent form was distributed to participants to ensure voluntary participation in this study. Participants had the opportunity to ask questions and were given the autonomy to engage, decline, or withdraw from their involvement at any point.

Results

Table 1: Demographic profile of respondents

Demographic profile	n	(%)
Age Group		
18-24	156	(63.4)
25-39	44	(17.9)
40-59	33	(13.4)
≥60	13	(5.3)
Gender		
Male	69	(28.0)
Female	177	(72.0)
Nationality		
Malaysian	211	(85.8)
Non-Malaysian	35	(14.2)
Ethnicity		
Malay	38	(15.4)
Chinese	54	(22.0)
Indian	74	(30.1)
Other	80	(32.5)
Religion		
Islam	55	(22.4)
Buddhism	59	(24.0)
Christianity	38	(15.4)
Hinduism	54	(22.0)
Others	40	(16.3)
Education		
Secondary	49	(19.9)
Undergraduate	174	(70.7)
Post-graduate	23	(9.3)

Marital Status		
Single	182	(74.0)
Married	59	(24.0)
Separated	5	(2.0)
Employment		
Employed	76	(30.9)
Unemployed	157	(63.8)
Pensioner	13	(5.3)
Monthly Income		
B40	119	(48.4)
M40	95	(38.6)
T20	32	(13.0)

Table 1 presents the demographic profiles of the respondents. The predominant age group was 18-24 (63.4%). The majority of respondents were females (72.0%) and Malaysians (85.8%). Most of them were from other countries (32.5%), followed by India (30.1%) and China (22.0%), respectively. Yet, Buddhism corresponds to the largest group of respondents (24.0%), followed by Islam (22.4%) and Hinduism (22.0%). Bachelor's respondents were the highest in number (70.7%) for this study. The majority of respondents were unmarried and unemployed, comprising 74.0% and 63.8%, respectively. The majority of respondents were from the B40 (48.4%).

Table 2: Health conditions associated with self-medication practice

Factors for self-medication	Prevalence n	(%)
Headache		
Yes	189	(76.8)
No	57	(23.2)
Pain		
Yes	152	(61.8)
No	94	(38.2)
Fever		
Yes	195	(79.3)
No	51	(20.7)
Colic		
Yes	94	(38.2)
No	152	(61.8)
Cough		
Yes	181	(73.6)
No	65	(26.4)
Hair Health		
Yes	78	(31.7)
No	168	(68.3)
Skin Health		
Yes	86	(35.0)
No	160	(65.0)
Drowsiness		
Yes	54	(22.0)
No	192	(78.0)
Influenza		
Yes	168	(68.3)
No	78	(31.7)
Vomiting		
Yes	89	(36.2)
No	157	(63.8)
Diarrhoea		
Yes	125	(50.8)
No	121	(49.2)
Constipation		
Yes	83	(33.7)
No	163	(66.3)

Table 2 indicates the factors contributing to self-medication. Fever recorded cardinal factor (79.3%) that drives the respondents to self-medicate, followed by headache (76.8%) and cough (73.6%), respectively. Nevertheless, drowsiness is the least favourable factor, which is 22.0%. Influenza, pain, and diarrhoea were noted as contributors to self-medication respectively.

Table 3: Prevalence of each driver for self-medication

Drivers of self-medication	Prevalence n	(%)
Mild illness		
Yes	203	(82.5)
No	43	(17.5)
Time-saving option		
Yes	178	(72.4)
No	68	(27.6)
Urgency		
Yes	158	(64.2)
No	88	(35.8)
Cost effectiveness		
Yes	148	(60.2)
No	98	(39.8)

Table 3 demonstrates drivers for self-medication. The predominant reason for self-medicating is mild illness (82.5%), while cost effectiveness corresponds to undesirable aspects of self-medications, whereas time saving and urgency are cited as reasons in 72.4% and 64.2%, respectively.

Table 4: Association between demographic profile and experience of self-medication

Demographics Profile	Has self-medicated No n	(%)	Yes n	(%)	χ^2	(df)	p-value
Age Group							
18-24	70	(44.9)	86	(55.1)	1.83	(3)	0.608×
25-39	15	(34.1)	29	(65.9)			
40-59	15	(45.5)	18	(54.5)			
60 or above	5	(38.5)	8	(61.5)			
Gender							
Male	28	(40.6)	41	(59.4)	0.17	(1)	0.677×
Female	77	(43.5)	100	(56.5)			
Nationality							
Malaysian	89	(42.2)	122	(57.8)	0.15	(1)	0.695×
Non-Malaysian	16	(45.7)	19	(54.3)			
Ethnicity							
Malay	18	(47.4)	20	(52.6)	0.60	(3)	0.896×
Chinese	22	(40.7)	32	(59.3)			
Indian	30	(40.5)	44	(59.5)			
Others	35	(40.0)	45	(60.0)			
Religion							
Islam	27	(49.1)	28	(50.9)	1.83	(4)	0.766×
Buddhism	26	(44.1)	33	(55.9)			
Christianity	15	(39.5)	23	(60.5)			
Hinduism	20	(37.0)	34	(63.0)			
Others	17	(42.5)	23	(57.5)			
Education Level							
Secondary	21	(42.9)	28	(57.1)	1.59	(2)	0.452×
Undergraduate	77	(44.3)	97	(55.7)			
Post-graduate	7	(20.0)	16	(80.0)			
Marital Status							
Single	75	(41.2)	107	(58.8)	2.22	(2)	0.329×
Married	29	(49.2)	30	(50.8)			
Separated	1	(20.0)	4	(80.0)			

Employment							
Employed	29	(38.2)	47	(61.8)	0.93	(2)	0.627ˣ
Unemployed	70	(44.6)	87	(55.4)			
Pensioner	6	(46.2)	7	(53.8)			
Income							
B40	50	(42.0)	69	(58.0)	0.83	(2)	0.662ˣ
M40	39	(41.1)	56	(58.9)			
T20	16	(50.0)	16	(50.0)			

ˣp>0.05

Table 4 shows the association between demographic profile and experience of self-medication. The age group from 25-39 signifies the dominance of respondents (65.9%).

Table 5: Association between gender and factors for self-medication

Factors for Self-Medication	Male (n=69)		Female (n=177)		χ^2	(df)	p-value
	n	(%)	n	(%)			
Headache					0.00	(1)	0.997ˣ
Yes	53	(76.8)	136	(76.8)			
No	16	(23.2)	41	(23.2)			
Pain					3.46	(1)	0.063ˣ
Yes	49	(71.0)	103	(58.2)			
No	20	(29.0)	74	(41.8)			
Fever					4.87	(1)	0.027*
Yes	61	(88.4)	134	(75.7)			
No	8	(11.6)	43	(24.3)			
Colic					0.59	(1)	0.442ˣ
Yes	29	(42.0)	65	(36.7)			
No	40	(58.0)	112	(63.3)			
Cough					0.32	(1)	0.569ˣ
Yes	49	(71.0)	132	(74.6)			
No	20	(29.0)	45	(25.4)			
Hair Health					0.33	(1)	0.567ˣ
Yes	20	(29.0)	58	(32.8)			
No	49	(71.0)	119	(67.2)			
Skin Health					0.40	(1)	0.528ˣ
Yes	22	(31.9)	64	(36.2)			
No	47	(68.1)	113	(63.8)			
Drowsiness					7.25	(1)	0.007*
Yes	23	(33.3)	31	(17.5)			
No	46	(66.7)	146	(82.5)			
Influenza					0.07	(1)	0.789ˣ
Yes	48	(69.6)	120	(67.8)			
No	21	(30.4)	57	(32.2)			
Vomiting					0.36	(1)	0.547ˣ
Yes	27	(39.1)	62	(35.0)			
No	42	(60.9)	115	(65.0)			
Diarrhoea					0.70	(1)	0.404ˣ
Yes	38	(55.1)	87	(49.2)			
No	31	(44.9)	90	(50.8)			
Constipation					0.15	(1)	0.701ˣ
Yes	22	(31.9)	61	(34.5)			
No	47	(68.1)	116	(65.5)			

*p<0.05, ˣp>0.05

Table 5 shows the association between gender and factors related to self-medication. A significant association observed between gender and self medication for fever ($p < 0.05$). Proportion of self medication for fever were signiificanly higher in males (88.4%) than females (75.7%). There is also a significant association between gender and the self-medication for drowsiness ($p<0.05$). Proportion for slef medication among Males (33.3%) were significanly higher than females (17.5%).

Table 6: Association between gender and drivers for self-medication

Drivers of Self-Medication	Male (n=69)		Female (n=177)		χ^2	(df)	p-value
	n	(%)	n	(%)			
Mild Illness					1.31	(1)	0.253ˣ
Yes	60	(87.0)	143	(80.8)			
No	9	(13.0)	34	(19.2)			
Time Saving Option					2.59	(1)	0.107ˣ
Yes	55	(79.7)	123	(69.5)			
No	14	(20.3)	54	(30.5)			
Urgency					0.04	(1)	0.840ˣ
Yes	45	(65.2)	113	(63.8)			
No	24	(34.8)	64	(36.2)			
Cost Effectiveness					6.05	(1)	0.014*
Yes	50	(72.5)	98	(55.4)			
No	19	(27.5)	79	(44.6)			

*p<0.05, ˣp>0.05

Table 6 exhibits the association between gender and drivers for self-medication. There is a significant association between gender and self-medication for cost-effectiveness. Males indicates significantly higher proportion (72.5%) than females (55.4%).

Discussion

We found that many younger participants, especially those in higher education, often have better access to health information online, making them more likely to self-medicate. They also tend to be more independent and more willing to manage their own health using OTC medicines. This reflects the fast-paced lifestyle of young adults, where convenience often leads them to skip doctors' appointments. Females (72.0%) were more represented than males, possibly because they are more concerned about health issues and take a more active role in managing their health, which might make them more likely to self-medicate. [16, 17]

Alomoush et al. reported male dominance due to being economically stronger and having greater freedom to access medical stores. [18]

Regarding nationality, Malaysians (85.8%) made up the majority of respondents, likely because the study was conducted in Malaysia, leading to more participation from local residents. Cultural practices, such as using traditional or OTC remedies, may also influence the self-medication habits of Malaysians. [19, 20]

Regarding ethnicity, the sample was diverse, with Indians (30.1%), Chinese (22.0%), and Malays (15.4%) forming the largest groups. Indian participants may be more inclined to self-medicate due to traditional practices such as Ayurveda, while Chinese participants may be influenced by

Traditional Chinese Medicine (TCM). Both of these could explain the self-medication behaviours observed in the study.

Regarding education, most respondents were undergraduates (70.7%), which is typical of a younger population. These individuals likely have more access to health information and self-medication resources. Unemployment (63.8%) was also common, probably due to the large student population, as many students are not employed full-time. [21, 22]

Income levels were another important factor, with 48.4% of respondents belonging to the B40 group (the bottom 40% of income earners). People in lower-income groups may be more inclined to self-medicate because it is a cheaper way to address common health problems, especially if they lack easy access to private healthcare, similar to findings from other researchers in different countries. [23, 24]

Health conditions associated with self-medication

In this study, we found that the main reasons for self-medication were fever (79.3%), headache (76.8%), and cough (73.6%), as shown in Table 2. These symptoms are often mild and temporary, so people may not feel the need to consult a doctor. The high rates of self-medication for these issues could be due to the easy availability of over-the-counter medicines and the desire to save time and money by avoiding a medical consultation. [21, 25, 26]

On the other hand, self-medicating for issues like hair health (31.7%) and drowsiness (22.0%) was less frequent. This could be because people either don't know how to address these problems themselves or believe they should consult a doctor. The lower rates of self-medication for these conditions may suggest that people are more cautious when dealing with less familiar or more complex symptoms. [27, 28]

Prevalence of each driver for self-medication

As Table 3 illustrates, the most common reasons for self-medicating were mild illness (82.5%), saving time (72.4%), and a sense of urgency (64.2%). It is understandable that people would treat minor illnesses themselves rather than consult a doctor. The high value placed on saving time also emphasises how modern lifestyles prioritise convenience, even if it means forgoing professional medical advice. [29, 30]

Association of self-medication with demographics

Although clear trends were evident in the data, Table 4 indicates that there were no significant relationships between age, gender, nationality, and self-medication experience ($p > 0.05$ for all factors). This suggests that self-medication is a common behaviour across different demographic groups and that factors like age or education don't have a significant influence on whether people self-medicate. This is important because it shows that self-medication is not limited to specific population segments but is a widespread practice that may reflect larger cultural or social norms. [29]

Gender differences in self-medication

Gender significantly influenced how participants practised self-medication, particularly for issues like fever and drowsiness, as shown in Table 5. Males were more likely than females to self-medicate for fever ($p<0.05$) and drowsiness ($p<0.01$). This may be because men prefer to treat their symptoms without seeking medical help, or it could reflect societal norms where men are expected to be more self-reliant in health matters.

There were no significant gender differences for common symptoms, such as headache, pain, or cough ($p > 0.05$), suggesting that males and females are equally likely to self-medicate for these more frequent health issues. [31, 32]

Gender and drivers for self-medication

One of the significant findings from Table 6 was the association between gender and cost-effectiveness as a reason for self-medication ($p < 0.01$). Males were more likely than females to think about cost when deciding to self-medicate. This might suggest that men are more focused on financial aspects when it comes to healthcare, perhaps due to economic responsibilities or personal preferences for managing their health issues. A study by Juneja et al. reports that convenience and a lack of time are the primary factors contributing to self-medication. [26]

Conclusion

The widespread occurrence of self-medication, combined with the influence of pharmacists in shaping this behaviour, presents a significant concern. While self-medication offers short-term benefits, such as saving time and money for minor health issues, it also carries considerable risks when undertaken irresponsibly. This study emphasises the urgent need for increased awareness and education about the dangers of self-medication, particularly among students who are often under pressure and more likely to manage their health independently. The research highlights key factors that drive self-medication, recognising both its advantages and risks, while emphasising the crucial role pharmacists can play in promoting safer healthcare choices.

Limitations and future scope

One of the key limitations in this research study was the insufficient sample size. This shortfall may have reduced the statistical power of the research and hindered the representativeness of the data, thus impacting the generalizability of the findings to a broader population. Future researchers should allocate more time and resources to the recruitment process, employ strategies

such as incentives to boost participation, or use online platforms to reach a wider audience.

We also recommended including respondents from a broader range of age groups and education levels. This will enable the discovery of habits and routines that may differ by age and educational level, providing a better understanding of the behaviours associated with non-prescription drug consumption.

Abbreviations

Over the counter (OTC), Quest International University (QIU)

Relevance of the study

This study is time-relevant, highlighting the pressing need for public health efforts to inform people, especially students, about the potential dangers of self-medication, including the risks of drug dependency and antibiotic resistance. Pharmacists, healthcare professionals, and educators can collaborate to raise awareness about responsible medication use, guide safe alternatives, and offer advice on managing health conditions without relying on self-medication.

Acknowledgement

Authors are grateful to Quest International University for providing all support for this work. The authors are grateful to Amanpreet Kaur Gurdarshan Singh of Quest International University for her contributions to the manuscript's language and grammar editing.

Authors' contribution

All authors made equal contributions to the study in terms of planning, data collecting, data analysis/interpretation, paper writing, manuscript revision, and final approval of the manuscript. All authors also agreed to be responsible for all parts of the work.

Funding

The present study was not funded.

Availability of data and materials

All data underlying the results is available as part of the article, and no additional source data is required.

Competing interests

None declared.

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