Assessing the Knowledge of Private University Students on Self-Medication Practices, Malaysia

Ganesh Pandian B, Sireesha P, Ng Y. P, S. Devan Raj, Law C. Y, Patrick C. E. M
Department of Clinical Pharmacy & Pharmacy Practice, Faculty of Pharmacy, AIMST University, Malaysia

Abstract

Introduction: Self-medication is usually defined as an intake of any type of drugs for treatment without professional supervision to relieve an illness or a condition. College students prefer self-medication for minor illness to save time and money. The study aimed at assessing the knowledge on self-medication practice among medical and nonmedical university students. Materials and Methods: It is a prospective observational study and a total of 579 individuals were included. Study participants were selected by stratified random sampling from various faculties of a private university campus. Study population was divided into two groups as medical and nonmedical based on their faculty they belong to. A prevalidated questionnaire was used to assess the knowledge on self-medication practices. Questionnaire was distributed, and various data regarding their self-medication practice were collected and the collected data were analyzed using Chi-square test. Results: The collected data showed that the knowledge of medical students on self-medication was better than the nonmedical group, and the study participants staying at hostel use over the counter (OTC) s more than the others. Conclusion: Self-medication practice was common among the university students which show the need for education regarding the rational use of OTCs. By doing this, the drug-related problems can be avoided and OTCs can be rationally utilized.

Keywords: Knowledge assessment, over the counters, self-medication, university students

Introduction

Self-medication can be simply coined as the practice of administering the appropriate dose of the over the counter (OTC) drug to achieve therapeutic efficacy in a patient without the supervision of healthcare professionals. According to the World Health Organization (WHO) 2000 guidelines, it can be defined as the use of medication by a patient on his own initiative or on the advice of a pharmacist or a lay person instead of consulting a medical practitioner. With the ever-advancing technology of today’s society, information is available at mere fingertips. Self-medication has become a very common practice.[1] Although self-medication is commonly practiced, it has debilitating effect to the patient as they could misuse the medication due to lack of accurate information regarding the dosage and therapeutic regimen, and also, they are not fully aware of the interaction of the drug they concurrently consume with other drugs and food.[3] The few underlying factors as to why people resort to self-medication are reported to be the high cost of expenditure. The cost itself of the travel to the hospital can be taxing to some, let alone the cost of consultation from the doctor. To counter this is to visit the public hospitals, which bring arise to further problems, such as long waiting lines and queues, as well as incompetent housemen.[3] Others cite reasons simply due to convenience and availability of drug. Certain groups of people, such as the very young, the very old, the very sick, and pregnant and breastfeeding women, are more vulnerable to OTC drugs. When such people use drugs, special precautions, which may include a doctor’s supervision, should be taken. To avoid dangerous drug–drug interactions, people should consult a pharmacist or doctor before they take these OTC drugs at the same time.
Many OTC drugs are potentially hazardous for older people. The risk increases when drugs are taken regularly at the maximum dose. A number of chronic disorders can become worse if an OTC drug is taken inappropriately. OTC drugs are not designed to treat serious disorders and can make some disorders worse. An unanticipated reaction, such as a rash or insomnia, is a signal to stop taking the drug immediately and obtain medical advice. Older people may be more susceptible to the possible side effects of antacids. Antacids that contain aluminum are more likely to cause constipation, and antacids that contain magnesium are more likely to cause diarrhea and dehydration. Antihistamines may cause drowsiness or fatigue and may worsen some disorders common among older people, such as closed-angle glaucoma and an enlarged prostate gland. Some of the interactions can be serious, interfering with the effectiveness of a drug or causing side effects. For example, taking aspirin with the anticoagulant warfarin can increase the risk of abnormal bleeding. Taking a multiple vitamin and mineral supplement can interfere with the action of some prescription drugs. OTC drug–drug interactions have not been studied systematically. Even when interaction warnings are printed on the label for OTC drugs, the language may be meaningless to most people. For example, the labels of some cold remedies that contain pseudoephedrine caution against using the product with a monoamine oxidase inhibitor (MAOI) (used infrequently for depression and certain other medical problems) or during the 2 weeks after discontinuing the MAOI. For the many people who do not know that the antidepressant they are taking is an MAOI, this important warning is not helpful. Drugs can move from a pregnant woman to her fetus (primarily through the placenta) and drugs can be transmitted through breast milk to the baby. Some such drugs can affect or harm the fetus or baby, so pregnant women and breastfeeding women should consult their doctor or pharmacist before taking any OTC drug or medicinal herb. OTC drug labels should be checked because they contain warnings against use during pregnancy and breastfeeding, if applicable. Certain types of drugs are particularly problematic. They include antihistamines (commonly contained in cough and cold remedies, allergy drugs, motion sickness drugs, and sleep aids) and nonsteroidal anti-inflammatory drugs (NSAIDs). NSAIDs should not be used during the last 3 months of pregnancy unless specified by a doctor because they may cause problems in the fetus or complications during delivery.

It has been frequently reported that the knowledge of self-administration of drugs plays a crucial role on the safety and efficient administration of drugs. It has been observed over and over that the awareness and knowledge of healthcare students are proven superior as opposed to nonhealthcare students. The evidence of this advanced knowledge in healthcare students is due to more exposure and training in the scope of drug administration. As professional healthcare providers, pharmacists have important roles in monitoring self-medication among the community. The increasing prevalence of self-medication in community has called on a greater role of pharmacist. Although self-medication can result in adverse effects, it is undeniably that it also can bring improvements of health and well-being of community as acknowledged by WHO. Pharmacist plays an important part in monitoring the dosage regimen, determining ailments that can be treated by self-medication, monitoring the outcomes of self-medications and counseling on medication. Patient counseling is effective in monitoring self-medication among patients. Pharmacists are responsible in counseling patients about the route of administration, correct dosage, precautions to be taken care of, directions, side effects, and information of the drugs to aware patients about the correct usage of drugs through self-medication. Thus, patients also need to administer the drugs in correct dose, time, and route of administration after they are being counseled and have knowledge about the drugs. The role of pharmacist in self-medication is stated through the joint statement by WHO and The World Self Medication Industry (1999). Its contents consist of the roles of pharmacists in documenting and reporting the adverse effects of self-medication to the relevant authorities, the appropriateness of self-medication in patients’ medical cases and supporting the community to store their drugs at proper location and storage condition. Furthermore, WHO Drug Action Program (1998) highlights the imperative role of pharmacists in self-medication. According to this statement, pharmacists are responsible to work with other healthcare team members in monitoring the self-medication among patients, communicate and interact in a well manner with patients to ensure their understanding, suppliers of good quality medicines, and other healthcare team members. Moreover, pharmacists have duties in advising other healthcare team members on the appropriate use of drugs. Other healthcare team members are responsible in providing high quality of health service to public and ensuring the responsible administration of drugs by the patients. The main sources of medications that are obtained by university students who self-medicate include friends, family, medication cabinets at home, and prior prescribed drugs. They usually obtain drugs by sharing medicines with family and friends, obtaining medicines from home’s medication cabinets and using old prescription to obtain new drugs which are not appropriate for patients’ current conditions. These practices may increase health risks for patients as they are not following the correct regimen. This study is conducted in order to assess the level of knowledge about self-medication practices and to compare the same among different groups.

**Materials and Methods**

It is a prospective observational study which was conducted for a time period of 6 months in a private university campus which have medicine, dental, and pharmacy courses, and the study was approved by the ethics committee. The study participants were randomly selected from various faculties. Students at undergraduate level were included irrespective of
their gender and race and study participants from preuniversity level and those who are not willing to participate in our study were excluded. A total of 579 individuals were included in our study and divided into two groups as medical (297) and nonmedical (282) according to the faculty they belong.

A validated questionnaire was used to assess the knowledge on self-medication practices, which consists of questions related to self-medication practices. Oral consent was obtained from the study participants for their willingness to participate in this study. In addition to that, their demographic data were also collected. Questionnaire was distributed to the study participants by explaining it to them, and various data were collected. Sample size was calculated using Raosoft online sample size calculator with the available population size in the campus, confidence interval (CI) = 95%, margin of error 5%, and response distribution 50%. Stratified random sampling was done to recruit the study population. Statistical analysis was performed by applying Pearson’s Chi-square test using SPSS (IBM SPSS Statistics for Windows [Version 23.0. Armonk, NY: IBM Corp]).

Results and Discussion

Total number of individuals participated in the study was 579 university students. Among them, 297 were medical students and 283 nonmedical students. Of the medical students, 196 were females and 101 were males. Of the nonmedical students, 178 were females and 104 were males. The sample of this survey is conducted in a multiracial environment where the majority of the students were Chinese where 221 medical and 172 nonmedical students along with 70 medical and 78 nonmedical Indian students, 4 medical and 18 nonmedical students from the Malay ethnicity had participated in this study. Beside the three major ethnicity in the university, there are also some other minority ethnics which comprises of 2 medical and 14 nonmedical students participated in this survey. This other ethnicity comes from the background of the Punjabi and indigenous students. Among the participants undergoing non-medical courses: 151 were from the Faculty of Applied Science, 100 from the Faculty of Business Management, 31 from Engineering Faculty. Study sample of medical includes 100 students from the medicine, 100 from the dental, and 97 from the pharmacy.

This survey also has been conducted on the basis of accommodation of the students. In our study from the medical sector, 251 students from hostel, 32 who stays in their home, and 14 students who stays outside of campus had participated in this survey. Despite of that, from nonmedical sector, 165 students from hostel, 35 students stay in their home, and 82 students staying outside of the campus had participated in this survey, respectively. These students had participated in this survey successfully, and data of their self-administration knowledge had been collected and analyzed. Many universities consist of healthcare and nonhealthcare students who choose to self-medicate because of general advantages such as convenient, cheap, and quick relief without consulting doctors when they have mild illnesses. The perceptions and thinking of our study is similar to the report by WHO that self-medication is a convenient and cheaper alternative for self-treating mild illnesses.\(^\text{[6,7]}\)

The treatment choice preferred by university students depends on the illnesses suffered, and self-medication is the most favored way of treating mild illnesses that they suffer. However, self-medication may be misused by some people intentionally and unintentionally. It has shown that knowledge of proper use of medicines among most people is poor and thus adverse effects can happen easily.

The indication for self-medication for mild illness of cold \((P = 0.001)\) shows the significant utilization of OTCs during the times when they have cold. The common reasons for their practice include quick relief, convenience and easy. The probability for medical and nonmedical students to self-medicate for pain is also significant \((P = 0.011)\) which is especially significant for female students as they have menstrual pain every month, so they consume painkillers to relieve the pain that they suffer. It is significant for university students to self-treat to lose weight as \((P = 0.049)\) especially for obese students who try to lose weight through medication. Significant number of students practice self-medication to relieve tiredness \((P = 0.025)\) especially when examinations are around the corner and heavy workloads. In European countries, there are common treatment areas for self-medication even though not all medicines used are suitable for self-medication. The common illnesses that are self-medicated include cold, cough, sore throat, headache, pain, diarrhea, skin problems, hemorrhoids, sleeping and calming, constipation, food supplements, mineral and vitamins, gynecologic problems, worm treatments, and cystitis.

Medical and nonmedical students usually have sleep disorders during their university life, especially during examination times. Most of them experience insomnia due to nervousness and worry, thus it is significant for them to consume sleeping pills \((P = 0.001)\). Significant number of students consume antiemetic drugs for nausea or vomiting \((P = 0.046)\). The drug utilization for heartburn and constipation are less significant. It is significant that students choose self-medication as their choice in self-treating digestive disorders such as diarrhea and bloating \((P = 0.002)\). It shows significance for self-medication practice in smoking cessation \((P = 0.041)\). This survey has shown that remarkable quantity of females had maintained a self-medication activity among the university students. This could be supported by the reason that they have the likability to maintain a better healthcare than the male counterparts. The male shows less prominent in self-administering medication as they believe that the symptom of their ailment will subdue as the time goes and they are being ignorant of the OTC therapeutic efficacy. There are many females taking herbal products, essential oils-based product, and homeopathy drugs in comparison to the males. This shows that women have higher tendency to improve their esthetic characteristic in comparison to men. The female respondent has shown significant value \((P = 0.000)\) in taking cold medication in
comparison to the male respondent. The female respondent has significant value \( (P = 0.018) \) in taking pain medication and significant value \( (P = 0.036) \) in taking nausea and vomiting medication. The male respondent shows significant value – \( P = 0.021 \) for migraine medication, \( P = 0.010 \) for weight loss medication, \( P = 0.006 \) for tiredness, \( P = 0.020 \) for boosting high spirit, \( P = 0.002 \) for sleep disorder medication, and \( P = 0.001 \) for stress reliever medication. One study conducted in Palestine University students shows that female take pain medication for the relief of menstrual pain as mentioned in this study.\[8\] There also another study in a Public University in Malaysia which states that female students stocked up OTC drugs such as analgesics, antipyretics, Ear, Nose and Throat (ENT) drugs, vitamins and minerals, gastrointestinal (GIT) drugs, anti-infections, and herbal medicines. They also mentioned reasons for the need of pain killer every month, and they usually use this sort of medicine for their disease while others mentioned they keep the remnant of the medicine for future use.\[9\]

The Chinese \( (P = 0.029) \) and Indian \( (P = 0.037) \) student shows high significant in taking cold medication. Indian shows significant value \( (P = 0.025) \) in taking pain medication. The high significant value of Chinese students taking medication for tiredness \( (P = 0.025) \), for low spirits \( (P = 0.028) \), sleep disorders \( (P = 0.007) \), stress \( (P = 0.000) \), nausea or vomiting \( (P = 0.050) \) and digestive disorder \( (P = 0.005) \). The highest indication of the Chinese student taking the medication are for stress relieving while the Indian show highest significant are both for alleviating pain and cold ailment. For cold illness, it is significant to observe that medical and nonmedical students staying at hostel to practice self-medication \( (P = 0.035) \). For pain it is significant for hostellers \( (P = 0.032) \). Medication classes which are commonly used among the student population had been largely directed to NSAID and analgesics drugs. This has been common because these drugs are more economic and are easily available in the pharmacy outlet. There is one literature stating that medication which are usually used for self-medication are paracetamol and analgesic which belongs to the classes mentioned above.\[10\]

In developing countries, antibiotics are sold commonly but it is not encouraged as it requires the acquisition of doctor’s prescription for the antibiotics. This is because the physician is the only responsible person who could diagnose the patient ailment and prescribe antibiotic according to the type of bacteria infecting the patient could be narrow or broad-spectrum antibiotics. Among study population the antibiotic self-administering practice is very less as only nine students does this with four being medical and five nonmedical students. Medical students use the herbal products more than nonmedical students as they know the functions and uses of them, products based on essential oils and homeopathy drugs used by medical students are more than the nonmedical students. There are also studies which state that herbal medications are also taken as self-medication.\[11\]

The female respondent shows a significant value \( (P = 0.002) \) in taking herbal product compared to the male respondent. The reason female respondent shows high susceptibility to herbal product is because they believe in traditional medicine could relieve their ailment more in comparison to the modern OTC medication. A study conducted in Malaysian Public University among female students confirms the reason stated where 63\% of the student answered that they use traditional medicine to reduce their ailment while 16.2\% student answered sometimes they do so and 16.8\% of the female students stated that they use the herbal medicine because of its lesser side effect.\[9\]

It is significant for medical and nonmedical students who stay in hostel to consume drugs not prescribed to the person but purchased by the patient over the counter at a pharmacy \( (P = 0.000) \). The reasons are high expense of consulting doctors, level of satisfaction of consumers on professional services and health care and convenience, accessibility, and availability of medicines as well as the perception of severity of illnesses suffered. One study shows that one who has less knowledge about self-medication can be harmful or detrimental to the person in comparison to the one with high knowledge on self-medication. One other study also shows that college students are more prominent in choosing the medication which appears in media and advertisements.\[12\]

Source of medication is described as the availability of the medicine to the student in need of it. Female respondents have high significant \( (P = 0.027) \) where the source of medication is formerly prescribed and not entirely used. Hence, the next time the person relapse with the similar ailment, the medication will be already there for the person to administer themself. Some student obtained the medication from over the counter at pharmacy without any prescription. This is significant in both the male \( (P = 0.005) \) and female respondents \( (P = 0.000) \) with female being the most significant in obtaining the medication from the pharmacy. The significant value for students obtaining medication from the pharmacy are as for Chinese \( (P = 0.000) \), Indian \( (P = 0.000) \), Malay \( (P = 0.040) \). The Indian and Chinese show the highest significance in obtaining the OTC product from the outside pharmacy without any physician’s prescription. There are also Chinese students who purchase the medication from mail or internet with a high significant value of \( (P = 0.027) \). One study conducted in University Mekelle states that the main source of medication for those who self-medicate are from the drug retail outlets followed by friends or relatives. The drug retail outlets contribute as the major distribution of the OTC medication \( (52.40\%) \) to those self-medicating students. In this study, it is also stated that paracetamol followed by NSAIDs are the drug of choice for both male and female respondent who involve in this self-medication practice.\[13\]

It is noted that the medical group of respondents in the study belong to the well-educated category of students in society and if the prevalence of self-medication is high among the students, then the prevalence in the remaining people may be serious to
be concerned. It can be shown that there are higher numbers of female students than males who self-medicate. Majority of female students keep medicines in their home cabinets and rooms for usage in times they need the medicines, but they have less knowledge of the indications of the drugs they keep. The study reveals that different types of medicines kept by female students are antipyretics and analgesics, minerals and vitamins, GIT drugs, herbal medicines and anti-infections. The reasons are analgesics are needed for every month and vitamins are needed for the purpose of study. It can be shown that most of the students check expiry dates of drugs before they consume, and some students throw the expired medicines into the bins without thinking of the bad consequences it brings to the environment.

**Conclusion**

The knowledge about the medication plays a crucial role in increasing the practice of self-medication among the students. This then defined the role of the pharmacist in disseminating the information regarding the medication use to the patient before consumed. This could provide a safe and effective management of therapeutic regimen of the medication to the patient which thus improves the quality of healthcare.

It is suggested that self-medication knowledge might affect the prevalence of self-medication practice among university students. When designing and implementing educational interventions, it is important that it is taken into account. More efforts should be carried out to improve self-medication practice among university students by including in the curricula which is related to antibiotic use and general aspects of self-medication and rational drug use.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**References**

1. Kayalvizhi S, Senapathi R. Evaluation of the perception attitude and practice of self medication among business students in 3 select cities South India. International Journal of Enterprise and Innovation Management Studies 2009;1:40-4.
2. Corrêa da Silva MG, Soares MC, Muccillo-Baisch AL. Self-medication in university students from the city of Rio Grande, Brazil. BMC Public Health 2012;12:339.
3. Suleiman IS, Osama HM, Suleiman IS, Osama HMI, Laila M, Riham W. Evaluation of self-medication among pharmacy students. American Journal of Pharmacology and Toxicology 2012;7:135-40.
4. Lucien R, Gerald K, Aurore A. Frequency and severity of adverse drug reactions due to self-medication: A cross-sectional multicentre survey in emergency departments. Drug Safety 2013;36:1159-68.
5. Denham MJ, Barnett NL. Drug therapy and the older person: Role of the pharmacist. Drug Saf 1998;19:243-50.
6. World Health Organization. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self Medication. World Health Organization; 2000. p. 14.
7. Kafle KK, Gartulla RP. Self-Medication and its Impact on Essential Drugs Schemes in Nepal: A Sociocultural Research Project; 1993.
8. Sawalha AF. A descriptive study of self-medication practices among Palestinian medical and nonmedical university students. Res Social Adm Pharm 2008;4:164-72.
9. Ali SE, Ibrahim MI, Palaia S. Medication storage and self-medication behaviour amongst female students in Malaysia. Pharm Pract (Granada) 2010;8:226-32.
10. Shankar PR, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara Valley, Western Nepal: A questionnaire-based study. BMC Fam Pract 2002;3:17.
11. Sawalha AF. Assessment of self-medication practice among university students in Palestine: Therapeutic and toxicity implications. Islam Univ J 2007;15:67-82.
12. Burak LJ, Damico A. College students’ use of widely advertised medications. J Am Coll Health 2000;49:118-21.
13. Gutema Belachew G, Alemayehu al G, Gutema GB, Diriba AG, Zerihun AK, Derbew FB, et al. Self-medication practices among health sciences students. The case of Mekelle University. J Appl Pharm Sci 2011;1:183-9.