

Original Article

Evaluation of Practice on Self-Medication among Allied Health Science Undergraduates of Sri Lanka, Therapeutic and Toxicity Implications

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Abstract

The main purpose of the study was to assess the prevalence of self-medication, classes of drugs used as self-medication, identify the patterns of self-medication practices, and examine sociodemographic characteristics, factors that correlate with self-medication and adverse drug reactions caused due to self-medication. A descriptive cross-sectional study was conducted among Allied Health Science undergraduates of Sri Lanka who have practiced self-medication during past 2 months prior to data collection. This study was conducted after obtaining the ethical approval from Ethics Review Committee, CINEC Campus, Malabe. The data were collected as a google form. According to the results, the percentage of the prevalence of self-medication was 59.45%. Commonly used medicines were analgesics, antipyretics (77.82%), expectorants, antitussives (36.95%) and antibiotics (24.34%). Some of the reasons why undergraduates practiced self-medication were influenced from previous experience (62.17%), previous doctor's prescription (34.78%) and because of the convenience (30.87%). Headache (70%), gastritis (35.21%), running nose (27.82%) and fever (27.39%) were the main four conditions for using self-medication. The reported adverse drug reactions were headache (40.00%), vomiting (22.17%), nausea (20.43%) and diarrhea (13.04%). In conclusion, more than half of the respondents (70%) think that self-medication is safe yet, most participants faced with adverse drug reactions (56.72%). Therefore, we suggest educating the people and implement policies regarding selling, advertising, and the safe use of self-medicated drugs, to prevent the adverse drug reactions.

Keywords: *Self-medication, Undergraduates, and Adverse drug reactions*

Introduction

According to the interpretation of World Health Organization (WHO), Self-Medication (SM) is, consuming a drug to an unknown disease by a person, without consulting a medical practitioner [1]. When SM is practiced under the guidance of a reliable medical information with appropriate knowledge & health frontage, it is defined as 'Responsible Self-Medication (RSM)'. Recently SM has provided positive effects by facilitating the consumers to overcome challenges caused due to minor illnesses. Further, SM helps to minimize the congestions at medical centers, time wastage of consumers having severe disease conditions. However, RSM can also be vulnerable to the consumers, as it can lead to misdiagnosis of diseases and unfavorable health hazards which will often need medical consultations [2]. Therefore, there is a consideration of implementing new policies by relevant authorities to name, safe and effective medicines to ensure safe Self Medication Practices (SMPs) [3],[4]. Moreover, it has been identified that, demographic and socio-economic factors including age, gender, educational level, and various policies followed in different countries have an impact on SMPs. These factors can be considered in understanding the level of knowledge, attitude, behavior, and practice of those who self-medicated to a certain extent. Therefore, it is important to examine these factors and how these factors correlate with self-medication among consumers [5], [6].

The global prevalence of SM is identified with a higher rate (93.7%) [7], while increasing the need to implement more policies and to draw more attention of health authorities towards SMPs. Thus, the sources, common drugs, common conditions, and risk factors of SM should be initially identified to prevent harmful risks of SM [7],[8]. It has

previously been observed that common reasons for practicing SM were minor health problems (32.5%), advice from relatives and friends (26.2%), followed by easy access to internet, drug availability, previous experience, medical cost, time saving and lifestyle [9]. Then, depending on a recent study, the minor health problem that led people to self-medicate were pain, cough, cold, flu followed by fever, dysmenorrhea, and gastrointestinal disorders [10]. According to R.K. Verma *et al.*, in 2014, in many countries SM was mainly done using over-the-counter medicines (OTCs) in addition to herbs and traditional medicines [11]. Even the general policies implemented by WHO has shown that the term 'over-the-counter medicines' were widely used to describe self-medicated drugs [12]. However, another study has shown that the OTCs associated with severe adverse effects and even death to consumers due to drug overdose and drug interactions [5]. For example, in 2001 Stevenson. R *et al.*, reported that two women were dead during winter flu pandemic by using OTCs; one due to hemorrhagic duodenitis caused by OTC medicine ibuprofen and the other due to overdose and misuse of paracetamol with another drug product [5],[13]. However, based on a recent study conducted by Malak and Abu Kamel in 2019, the most used drug classes for SM were painkillers including paracetamol and anti-inflammatory drugs (56.3%), followed by antibiotics, vitamins, antipyretics, and antihistamines [10]. Furthermore, it has been found that prescription-only-drugs (PODs) also have recently been used for SMPs in many developing countries [3], [4],[14]. Health hazards like antimicrobial resistance (83%), drug abuse (99.4%) and drug dependency (70%) have arisen because of misuse of SMs in many developing and developed countries [3],[4],[14],[15]. It may result in severe drug interactions with body compartments that may leads to increase toxicity risk. For instance, antibiotics have reduced the number of illnesses and deaths due to infectious diseases, but the misuse of antibiotics in the form of SM has led to antibiotic resistance. Further, painkillers including paracetamol has been found to be relatively non-toxic when given in therapeutic doses but may be toxic when taken in overdose [15]. Furthermore, a review article by Ruiz, has shown that, potential risks such as incorrect self-diagnosis, incorrect doses with

incorrect dosing frequencies have arisen due to non-responsible self-medication [16].

Therefore, non-responsible SM results in serious health hazards without proper education. As a developing country, Sri-Lanka faces the same situation as there is a less awareness about the adverse drug reactions caused by SMPs. Moreover, In Sri Lanka there is insufficient research on the evaluation and quantification of the SMPs among public community and health science undergraduates who were more dependent on SMPs. The purpose of this study was to provide a better education of SM as well as proper awareness about adverse drug reactions. Further, recent foreign studies have showed that PODs have used for SMPs [3]. They have led to dangerous health hazards and misuse of drugs. In Sri Lanka one research study has been carried out for SMPs among athletes [17]. But there were insufficient research findings among young generation including university students on SMPs. Therefore, there was a consideration to evaluate the SMPs among Allied Health Science undergraduates in Sri Lanka to fill the literature gap, to get an idea about SMPs and to get an idea about adverse drug reactions upon usage of SM. Considering these facts, this study was focused on identifying the practices of SM among Allied Health Science undergraduates in selected universities of Sri Lanka.

Research Methodology

A descriptive cross-sectional study was conducted among Allied Health Science undergraduates in Sri Lanka with the approval of Ethics Review Committee of CINEC Campus, Malabe, Sri Lanka. Respondents were given a pretested questionnaire which consisted of both open ended and close ended questions. It was prepared in all three languages of Sri Lanka; Sinhala, Tamil, and English as a google form. It was consisted with two main parts. The first part (Part A) consisted with sociodemographic details including university, department, year of study and gender. The second part (Part B) was consisted with 10 questions about self-medication.

Participants were from, University of Peradeniya, University of Sri Jayewardenepura, University of Ruhuna, University of Jaffna and Kotelawala Defense University. Stratified random sampling

was used to select the participants from each department of Medical Laboratory Science, Pharmacy, Nursing, Physiotherapy and Radiotherapy. Simple random sampling was employed for the final selection of the participants through answered google forms. The sample size was determined by the single population proportion formula. Participants who belong to any ethnic group or race were allowed to participate in this study regardless of their gender group. All participants who gave their consent were included in the study. Participants who did not give approval and who were not willing to supply information were excluded from our study. The data were analyzed by the summary of the google form.

Result and Discussion

A total number of 371 undergraduates were participated in this study. Out of the total participants, 73.85% were female and 26.14% were male.

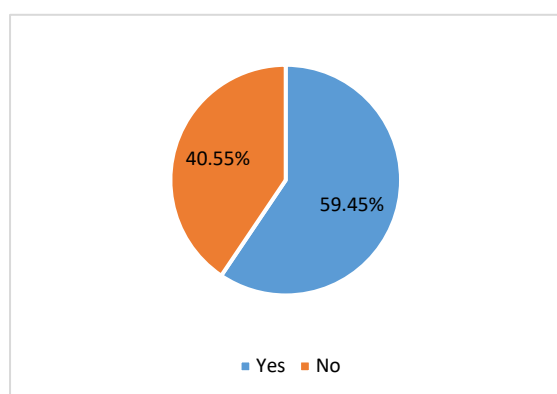


Figure. 1 Prevalence of self-medication

This above pie chart (Figure 1) shows the percentage of people who have taken SM during last two months. According to this the prevalence of self-medication is 59.45%.

SM has now become a global phenomenon in the present world. According to the research studies done within past five years, it has found that the prevalence of SM among university students is high. For an example (2020), the general prevalence of SM among university students was 70.1%. Majority of them were medical students (97.2%) [18]. the prevalence of SM in our study was found to be 59.45%. A similar prevalence has been reported in the study conducted among

university students of Faculty of Medicine, Ain-Shams University, in Egypt which was 55% [19].

However, difficulties were encountered when comparing the prevalence of SM among undergraduate university students in the national perspective due to lack of research conducted in Sri Lanka on this aspect.

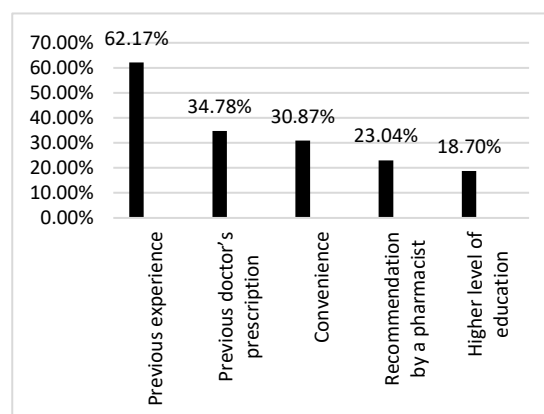


Fig 2. Reasons for using self-medication

According to figure 2, our study denoted that the most common reasons for SM as previous experience (62.17%) followed by previous doctor's prescription (34.78%), convenience (30.87%), recommendation by a pharmacist (23.04%) and higher level of education (18.70%).

According to a study conducted in Bangladesh (2018), most common causes for SM were indicated as minor diseases (73.9%) and previous experience (71.4%) [20]. Then, based on an Ethiopian study (2016), minor illnesses (44.1%) and poor-quality health care routine services (27.1%) were main reasons for SM [28]. Further, two most frequent reasons found in Nigerian study (2018) for SMPs were prior knowledge and previous experience (67.9%) and mild illnesses (55.8%). [29]

Therefore, it can be considered that treatment based on previous experience may result in misdiagnosis and incorrect choice of drugs, since diseases may share similar symptoms.

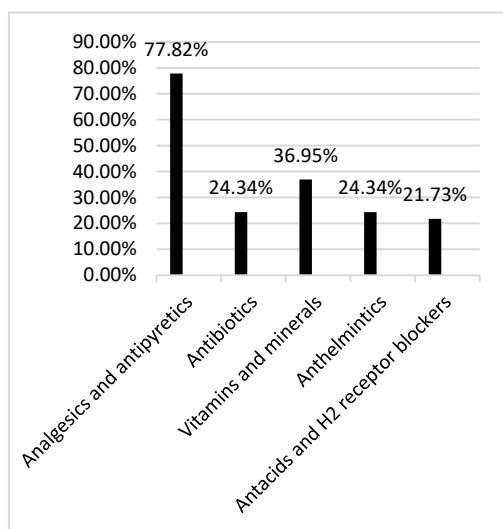


Fig 3. Class of medicines used as self-medication

Figure 3 shows that, analgesics was the most used class of drugs (77.82%) among Allied Health Science undergraduates of Sri Lanka. Vitamins and minerals were the secondly highest used classes of drugs which is 36.95% of total respondents. Some of the other types of drug classes were Antibiotics (24.34%), Anthelmintics (24.34%), Antacids and H₂ receptor blockers (21.73%).

These results were similar to a south Indian study that showed, usage of analgesics (65%) and antipyretics (71%) in high percentages as commonly used drug classes [21]. Further, study conducted among Jordanian university students in 2019, the majority (56.3%) were observed with using painkillers. [22]

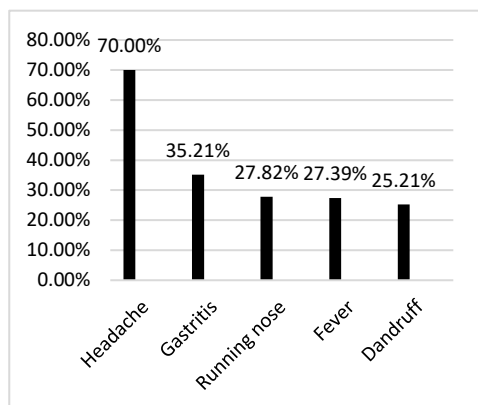


Fig. 4 Health conditions to which Self-medications were used

The most common health condition which the participants were compelled to use self-medication

was headache which is 70% following gastritis (35.21%), running nose (27.82%), and fever (27.39%) and dandruff (25.21%). (Figure 4)

According to an Ethiopian study conducted in 2007 and Palestine study conducted in 2010, it was found that the most common ailments for which SM used were headache [19] [23]. Further, International survey in Department of Public Health, Marmara University School of Medicine and School of Nursing, Istanbul, Turkey indicated that SM was most taken for fever, headache, ingestion, and sore throat conditions [24].

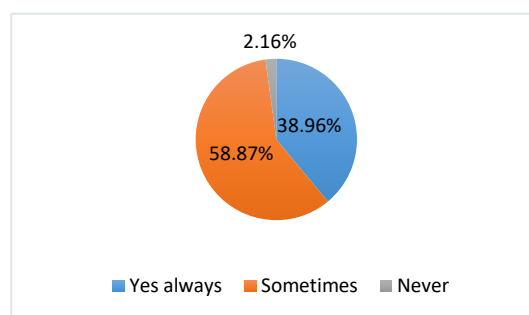


Fig. 5 Instructions read prior to self-medication checked for instructions

When looking for information about respondents who read the instructions on the package before taking SM, according to the figure 5, many respondents have probably checked the instructions on the package and 2.16% of them had never checked the instructions.

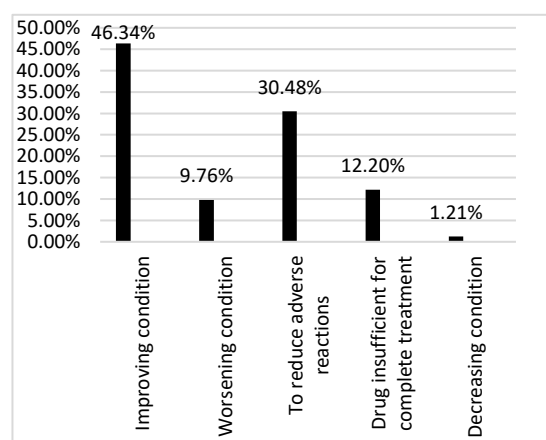


Fig. 6 The reason for changing self-medication

According to the figure 6, the most common reason for changing the dose of medication during self-

medication practices were due to improving conditions of the symptoms (46.34%) and to reduce adverse drug reactions (30.48%) that would arise due to SMPs.

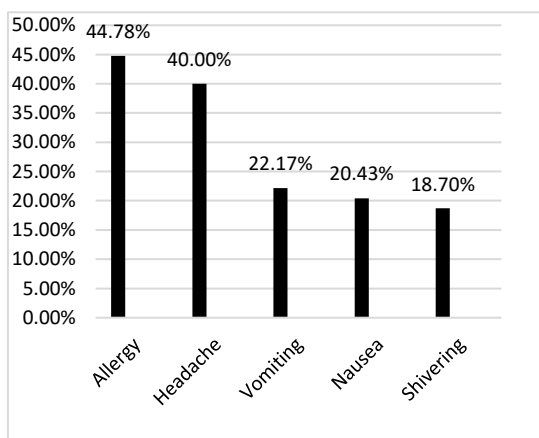


Fig. 7 Common adverse reactions

Some of the most common adverse drug reactions that had arisen due to SM according to the figure 7, were allergy (44.78%), headache (40.00%), vomiting (22.17%), and nausea (20.43%), shivering (18.7%). Furthermore, some other studies also have shown that adverse drug reactions such as antibiotic resistance, hypersensitivity and many other problems were caused due to some drugs used in SM. For example, according to a review article written by D.Bennadi (2013) on adverse effects that were caused due to use of allotropic drugs for SM, at Sri Siddhartha Dental College and Hospital, Karnataka in India, has shown that antibiotic resistance, skin problems and hypersensitivity were mainly caused in addition to allergic conditions [25]. Therefore, it is mandatory to maintain pharmacovigilance data to prevent adverse drug reactions and improve the quality of life of the patients.

Conclusion

The prevalence of self-medication practices among Allied Health Science undergraduates in Sri Lanka was determined as 59.45%. The majority of the undergraduates used analgesics and antipyretics as the SM drugs due to their previous life experience. Headache was the main health condition that undergraduates compelled to use SM and occurrence of allergies (44.78%) was reported as the commonest adverse drug reaction.

Recommendation

Recommend for government, National Medicines Regulatory Authority (NMRA) and other relevant authorities to prepare, implement policies and programs to make both the public and relevant health care stakeholders aware about the selling, advertising, and the safe use of self-medication to prevent the adverse drug reactions that may occur through that.

Declarations

A. Study Limitations

As the respondents were given the pretested questionnaire in the form of a google form, some defects had been occurred by some respondents when filling the google forms which cause certain issues when collecting data for the research.

B. Acknowledgements

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C. Funding source if any

None.

D. Conflict of Interests

The authors declare that there is no any conflict of interests

E. Human and Animal Related Study

None

F. Ethical Approval

This study was conducted after obtaining the ethical approval from the Ethical Review Committee of CINEC Campus, Malabe.

G. Informed Consent

Prior to gaining each volunteer's consent, the aim of the study and their participation in it were clearly stated.

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