

KNOWLEDGE, ATTITUDE, AND PRACTICE ON OVER-THE-COUNTER DRUGS AMONG UNDERGRADUATE STUDENTS OF A TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

INTRODUCTION

Over-the-counter drugs are those which are safe and effective for the general public to use, without consulting a health care professional. Self-medication with over-the-counter drugs is common among medicine and health science students. This study aimed to assess the knowledge, attitude, and practice on over-the-counter drugs among undergraduate students of a tertiary care teaching hospital.

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted among first and second year undergraduate students from June 2023 to September 2023. Data was collected through self-administered questionnaire and was entered and analyzed in Statistical Package for Social Sciences version 16. Descriptive statistical analysis was carried out to find out knowledge, attitude and practice of over-the-counter drugs.

RESULTS

Among 352 students, 272 (77.27%) had good knowledge (with mean knowledge score of 7.22 ± 1.43 out of 9) on over-the-counter drugs. Almost all of the students 350 (99.43%) had a positive attitude toward over-the-counter drugs use, (with a mean attitude score of 27.55 ± 2.70 , out of 40). Only 195 (55.40%) students always read the instructions on the medicine's label before use. Most commonly used over-the-counter drugs was antipyretics 264 (75%).

CONCLUSION

Majority of the students had good knowledge and practice and positive attitude towards over-the-counter drugs use, however, there were few inappropriate practices. Awareness on proper use of over-the-counter drugs among students is necessary in medical institutions to prevent the misuse of these drugs.

KEYWORDS

Attitude, Knowledge, Over-the-counter drugs, Students

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INTRODUCTION

Over-the-counter (OTC) drugs, also known to be non-prescription medicines, include the drugs sold without a prescription from a registered medical practitioner. The current trend of OTC drugs use has grown steadily in the last few years.¹ Self-medication practice is highly prevalent in the developing countries and can be enhanced by the availability of medicines such as OTC drugs.² It has been recognized that OTC drugs have the potential both to benefit as well as harm.³ Benefits of OTC drugs use include such as time saving, lowering the costs of treatment and reducing absenteeism from work due to minor symptoms. Risks related to incorrect use of OTC drugs may lead to delay in the diagnosis of a serious health problem, incorrect choice of therapy, adverse drug reactions, and non-compliance to treatment.⁴

Use of OTC drugs in medical students is common practice as they are well exposed to the knowledge about diseases and drugs, the source of knowledge from medical books, internet, influence from their seniors.⁵ They are future medical practitioners and their knowledge influences use of OTC drugs and overall safety of its use. Medical students could play a major role on rational use of OTC drugs if proper knowledge, attitude and practice towards use of these drugs are imparted to them during undergraduate training career. Hence, this study was undertaken to assess the knowledge, attitude and practice on OTC drugs with an aim to increase awareness on the use OTC drugs among undergraduate students of a tertiary care teaching hospital.

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted among undergraduate students studying in Kathmandu University School of Medical Sciences (KUSMS) from June 2023 to September 2023. Ethical approval was obtained from the Institutional Review Committee of Kathmandu University School of Medical Sciences (IRC reference No: 80/23) prior to the study. Census method was used for collecting data. All the basic science students studying in first and second year MBBS, BDS and first year B.Sc Nursing, BNS were approached for the study. The total numbers of students were 370. Before the commencement of the study, participants were explained about the objectives of the study and written consent was taken.

Semi-structured questionnaire were developed after reviewing previously published related studies with few modifications.^{5,6} Questionnaire was divided into 4 parts. First part included socio-demographic profile of students, second part consisted of knowledge related nine questions, third part included attitude related eight questions and fourth part consisted of practice related nine questions on OTC drugs.

For the knowledge section, correct response was scored as one mark, while incorrect and unsure response was scored as zero. The total knowledge score ranged from zero to nine, which was then categorized into "Good knowledge" (seven or >seven correct answers), "Moderate knowledge" (four–six correct answers), and "Poor knowledge" (<four correct answers). The attitude section was measured using a five-point Likert scale with the following response options: Strongly disagree, Disagree, Neither agree nor disagree,

Agree, and Strongly agree. These options was scored, respectively, as one, two, three, four, and five, each weighing 1-5 respectively for each positive statement. Total score ranged upto 40, with a score more than 20 considering as a positive attitude and 20 and less than 20 considering as negative attitude towards OTC drugs use. The third part of the questionnaire included nine questions to study the practice of OTC drugs. First category consisted of six questions and score ranged from 0–6. Each correct response was scored as one mark, while incorrect and unsure response was scored as zero. Score of 0-3 demonstrated good practice and a score of 4–6 indicated poor practice on OTC drugs. Second category comprised of three different questions on practice towards OTC drugs with different options including reason for using OTC drugs, sources of information on OTC drugs, most commonly used OTC drugs. This category was not scored.

The participants were explained about the purpose of the study. Questionnaire was submitted and collected during the lunch hour, for not disturbing any of their classes. Participants were requested to complete the questionnaire in the presence of the investigator. Each participant was allotted 15 minutes to answer the questionnaire which they felt appropriate to answer. They were informed about confidentiality of data that it would not be used for anything except for the study purpose.

The collected data was coded and entered in Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistical analysis was carried out to find out knowledge, attitude and practice of OTC drugs.

RESULTS

In this study, questionnaires were distributed to 370 students. Eighteen questionnaires were subsequently excluded because of incomplete data. The final response rate was 95.13% (352).

Mean age of the participants was 20.98±1.49 years, with 156 (44.31%) male and 196 (55.68%) female students. Among 352 students, 272 (77.27%) had good knowledge (with mean knowledge score of 7.22±1.43 out of 9) on OTC drugs. Majority of students 327 (92.9%) knew OTC drugs are used usually for treating minor illness and injuries. Only 194 (55.11%) knew that OTC drugs falls under group 'Ga' or category 'C' in Nepal, the category of drugs, that is classified by Department of Drug Administration (DDA), a central government body in Nepal that regulates Drugs act and regulations (Table1).

Table 1. Students response on knowledge questions

Knowledge Questions	Number (%)
Decision for using OTC drug is made by	
Doctor	36 (10.2)
Pharmacist	53 (15.1)
Consumer	263 (74.7)
All OTC drugs are safe and effective?	
Yes	68 (19.32)
No	233 (66.19)
Do not know	51 (14.49)
OTC drugs are used usually for treating diseases like	
Chronic illness	6 (1.7)
Minor illness and injuries	327 (92.9)
Do not know	19 (5.4)
OTC drugs can cause adverse effects	
Yes	301 (85.51)
No	35 (9.94)
Do not know	16 (4.54)
Interactions involving OTC drugs can sometimes produce unwanted results or make medicines less effective.	
Yes	288 (81.82)
No	14 (3.98)
Do not know	50 (14.20)
Paracetamol is an OTC drug?	
Yes	332 (94.32)
No	13 (3.69)
Do not know	7 (1.99)
Morphine is an OTC drug?	
Yes	25 (7.1)
No	299 (84.94)
Do not know	28 (7.95)
Under which group, OTC drug falls under, as categorized by DDA in Nepal?	
Group Ka	116 (32.95)
Group Kha	42 (11.93)
Group Ga	194 (55.11)
If suspected side-effect(s) are seen, then one should	
Take low dose until side effect(s) subside	27 (7.67)
Continue taking the drug regardless of the side effect(s)	12 (3.41)
Report to a doctor	313 (88.92)

Almost all respondents 350 (99.43%) had a positive attitude toward the use of OTC drugs with the mean score of 27.55 ± 2.70 , out of 40. Among all, 135 (38.35%) students strongly disagreed and 130 (36.93%) disagreed that antimicrobials should be available as OTC drugs. In a response to question, if it is okay to share OTC drugs, 146 (41.48%) agreed and 8 (2.27%) students strongly agreed (Table 2).

Table 2. Students response on attitude questions

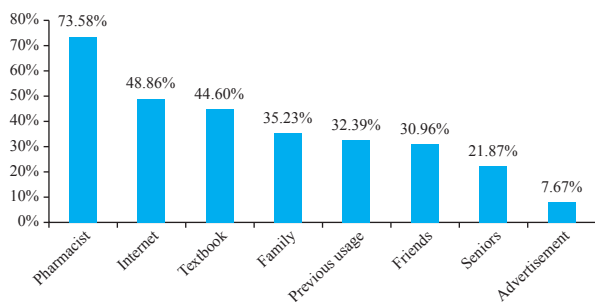
Attitude Questions	Number (%)
Using OTC drugs as a self-medication is safe when you use them correctly	
Strongly Agree	45 (12.78)
Agree	213 (60.51)
Neutral	61 (17.33)
Disagree	21 (5.96)
Strongly Disagree	33 (9.37)
OTC drugs are cheaper and convenient	
Strongly Agree	40 (11.36)
Agree	226 (75.57)
Neutral	43 (12.21)
Disagree	37 (10.51)
Strongly Disagree	6 (1.7)
It is okay to share OTC drugs with others	
Strongly Agree	8 (2.27)
Agree	146 (41.48)
Neutral	94 (26.7)
Disagree	77 (21.87)
Strongly Disagree	27 (7.67)
Do you think OTC drugs can be used in pregnancy and breastfeeding but with caution unless stated on the label to avoid?	
Strongly Agree	17 (4.83)
Agree	91 (25.85)
Neutral	57 (16.19)
Disagree	123 (34.94)
Strongly Disagree	64 (18.18)
Is it appropriate to treat minor-ailments like a common cold with OTC drugs?	
Strongly Agree	56 (15.91)
Agree	218 (61.93)
Neutral	37 (10.51)
Disagree	35 (9.94)
Strongly Disagree	6 (1.7)
Do you think antimicrobials should be available as OTC drug?	
Strongly Agree	6 (1.7)
Agree	36 (10.23)
Neutral	45 (12.78)
Disagree	130 (36.93)
Strongly Disagree	135 (38.35)
Do you think OTC drugs lead to frequent self-medication?	
Strongly Agree	77 (21.87)
Agree	207 (58.81)
Neutral	39 (11.08)
Disagree	23 (6.53)
Strongly Disagree	6 (1.7)
Do you think it is necessary to periodically update information regarding OTC drugs?	
Strongly Agree	174 (49.43)
Agree	147 (41.76)
Neutral	13 (3.69)
Disagree	7 (1.99)
Strongly Disagree	11 (3.12)

Mean practice score was 4.37 ± 1.26 out of 6, with 272 (77.27%) students with good practice. Only 195 (55.40%) students always read the instructions on the medicine's label before use and only 168 (47.73%) know the correct dose, frequency and duration of OTC drugs they use. Most common reason for using OTC drugs were their easy accessibility 277 (78.69%), followed by it is time saving 140 (39.77%) (Table 3).

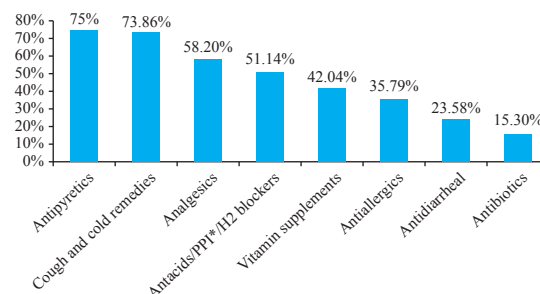
Table 3. Students response on practice questions

Practice Questions	Number (%)
When do you usually consume OTC drugs?	
Whenever symptoms are minor or manageable	262 (74.43)
Whenever I feel sick	53 (15.06)
Whenever I cannot visit doctor	37 (10.51)
What do you do, if OTC drugs show a change in shape, color, and or odor?	
Immediately discard the drugs	329 (93.46)
Continue using until it expires	19 (5.4)
Continue using even if after it expires	4 (1.14)
Where do you usually store OTC drugs?	
Medicine box	268 (76.14)
On an open table	82 (23.39)
Refrigerator	2 (0.57)
How often do you read the instructions on the medicine's label before use?	
Always	195 (55.4)
Sometimes	137 (38.92)
Never	20 (0.57)
How often do you check the expiry date?	
Always	316 (89.77)
Sometimes	32 (9.09)
Never	4 (1.14)
Did you know correct dose, frequency and duration of OTC drug that you use?	
Yes	168 (47.73)
No	115 (32.67)
Do not know	69 (19.60)
What is the common reason for you to use OTC drug?	
Time saving	140 (39.77)
Low cost	136 (38.92)
Safe and well-tolerated	131 (37.21)
Easy accessibility	277 (78.69)

Regarding the source of information on OTC drugs, pharmacist 259 (73.58%), followed by internet 172 (48.86 %) was the most common source for getting reliable information on OTC drugs (Figure 1).

**Figure 1. Source of information on OTC drugs**

Most commonly used OTC drugs were antipyretics 264 (75%), followed by cough and cold remedies 260 (73.86%). Antibiotics was used by 54 (15.3%) students as OTC drugs. (Figure 2).

**Figure 2. Most common OTC drugs used by students**

(PPI*: proton pump inhibitors)

DISCUSSION

This study assessed the knowledge, attitude, and practice regarding OTC drugs among undergraduate student studying in a tertiary care teaching hospital in Nepal. In our study, approximately 3/4th of study population had good knowledge on OTC drugs with mean score of 7.22 ± 1.43 out of 9. In a study conducted in Ethiopia, 67.6% of students had good knowledge and effectiveness of OTC drugs with mean knowledge score of 6.59 ± 1.32 out of 10.⁵ A good level of knowledge and proper use of OTC drugs may reduce the risk of adverse effects and the economic burden on the government.⁶ Almost all the participants knew that OTC drugs are usually used for treating minor illness and injuries. The response was similar to the study in which 88.7% responded that that OTC drugs are usually used for treating minor illness and injuries.⁵ However, only half of the respondents knew that OTC drugs falls into category 'C' of drugs, that is categorized by DDA, the central government body in Nepal, which implements drug act and regulations. The result was similar to the study in Nepal, in which 53.9% students knew that OTC drugs are categorized as group 'Ga' or Category 'C' drugs in Nepal.⁷

Almost all students had a positive attitude toward the use of OTC drugs, with a mean attitude score of 27.55 ± 2.70 out of 40. The response was similar to a previous studies in which almost all students had a positive attitude toward the use of OTC drugs, with a mean attitude score of 26.62/40 (SD=3.42)⁵ and 27/40.⁶ In a response to question whether antimicrobials should be available as OTC drugs, 38.35% strongly disagreed and 36.93% disagreed. The development of drug resistance to many antibiotics has also been associated with the frequent and inappropriate use of these medications that could be available without a prescription.⁸ Approximately half of the students always read the instructions on the OTC labels before use. The result was similar to study in which a significantly higher proportion of medical students (57.1%) reported that they read medication instructions on the patient information leaflet every time they bought a new pack of medication.⁹ Before using OTC drugs, reading the product label is the key to proper use, as it is taken without consulting a doctor.⁶

Most commonly used OTC drugs were antipyretics (75%), followed by cough and cold remedies (73.86%). This result was consistent with the previous studies in which antipyretic and analgesic medications were the most frequently used OTC medications.^{10,11} Due to stress and other educational loads, medical students are usually victims of headaches and fever that usually make them to use antipyretic and analgesic OTC drugs. OTC drugs used as analgesics and antipyretics may lead to gastritis, acidity, hepatic and renal damage.¹² However, in an another study, students favoured OTC drugs were cold and flu drugs (75.8%).⁶ In this study, antibiotics was used by 15.3% students. The widespread use of prescription-only drugs such as antibiotics, is of concern.⁸ In different studies, antibiotics are the first five most frequently used OTC medications among medical students.^{13,14} The dispensing of antibiotics has to be restricted and regulated on different levels including legislations, physicians prescribing, pharmacy dispensing, and awareness of the population.¹⁵

There were some limitations in the study. Since the study was a cross-sectional study, recall bias is likely to occur on the practice questions. The other limitation could be concerning the study participants, in which the study could have been more generalizable if students from the whole years of study (first year to final year) and from different institutions were included. Although the participants were requested to complete the questionnaire independently, discussion between them could not be entirely ruled out.

CONCLUSION

Majority of the undergraduate medical students had good knowledge and practice and positive attitude towards the OTC drugs. Few had incorrect behaviour towards the practice of OTC drugs. Awareness program on the proper use of OTC drugs among students in medical institutions is necessary to prevent the rise of improper practices in OTC drugs. Awareness program regarding the patient medication safety should be provided to the students for improving the correct practice of OTC drugs.

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CONFLICT OF INTEREST

None

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