

Knowledge, attitude and practice of over-the-counter drug among medical and dental students-a cross sectional study

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ABSTRACT

Introduction: Self-medication of the over-the-counter drug is practiced all over the world to address minor illness. But this practice can promote irrational use of medicine; prolong the illness, drug dependency and abuse. Medical students are the future medical practitioners and play the crucial role in treatment and counseling the patients regarding the appropriate use of medicines. Therefore, the present study was conducted to assess the knowledge, attitude and practice of self-medication of over-the-counter drugs among undergraduate students. **Methods:** An institution based descriptive, cross-sectional study was conducted after taking ethical approval from the Institutional review committee of Gandaki medical college teaching hospital and research center (GMCTHRC) and data was collected from May to July 2018 from MBBS (90) and BDS (25) first year students. Descriptive and correlation analysis were done with the data. The results were expressed in percentages. **Results:** Among 115 respondents, 70 were female and 45 were male students. Majority of respondents (94.8%) believed that instruction on the label of the drugs should be followed and 78.3% respondents agreed that over-the-counter drugs could interact with other prescribed drugs. Majority of them agreed that clinical history should be taken before dispensing the over-the-counter drugs and pharmacists should provide information regarding the side effects, appropriate use and storage of the drugs. There was weak positive correlation between knowledge and attitude ($r = 0.288$) but despite good knowledge and attitude only 37.4% students had good practice. **Conclusions:** We concluded that the students hadn't been fully utilized their good knowledge into action.

Key words: Attitude, knowledge, medical student, OTC drugs, practice, self-medication.

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INTRODUCTION

Over-the-counter (OTC) drugs are those drugs that can be sold directly to a consumer without a prescription from pharmacy and in Nepal OTC drugs are categorized as Group Ga drugs whereas, prescription drugs are those drugs that are dispensed only to consumer possessing a valid prescription. Lack of adequate knowledge about OTC medications may directly lead to adverse drug reactions and non-compliance to treatment programs. The evidence of self-medication practice of OTC drugs has been raised.¹⁻³ The World Health Organization (WHO) has defined self-medication as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms without consultation of health care professionals.⁴

Self-medication is an important component of self health care system and is a serious public health concern in both developed and developing countries. Self-medication may include using OTC

drugs, leftover drugs from previous prescribed drugs and drugs obtained from relatives or friends.⁵ Good self-medication practice can provide benefits such as saving scarce medical resources from being wasted on minor conditions, lowering the costs of community-funded health care programs and reducing absenteeism from work due to minor symptoms.⁶ Pharmacists can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication. On the contrary, risk associated with self-medications include incorrect self-diagnosis, failure to seek appropriate medical advice promptly, incorrect choice of therapy, failure to recognize special pharmacological risks, rare but severe adverse effects, failure to recognize contraindications, warnings and precautions, masking of symptom of the serious, increase poly-pharmacy and interaction with other regularly used medication.^{2,7-9}

Globally, the self-medication of OTC drugs among medical students is a common practice.¹⁰⁻¹² For instance a cross-sectional study conducted in medical students at Punjab, India showed that the prevalence of self-medication increased with the increase in the year of study due to increase in knowledge of medicines. The study also revealed that the most commonly used medicines were antipyretics and analgesics.¹¹ Similar studies conducted in Rajarajeswari Medical College, Bangalore, India, College of Medicine-Nepalese Army Institute of Health Sciences, Kathmandu and University of Gondar, Northwest Ethiopia showed that the prevalence of self-medication was 86%, 76.6% and 59.7% respectively, in the medical students.¹²⁻¹⁴

Young medical students are among the most vulnerable to self-medication because of their higher educational level and ability to find information about medications through the Internet. Beside this, the other reasons for the practice of self-medication are like: suffering from a mild illness, having previous experience in treating similar illnesses, economic, advertising of drug manufacturers, excessive accessibility and availability of OTC medications.^{10,11,15} They are the future medical practitioners and play the crucial role in treatment and counseling their patients about the advantages and disadvantages of self-medication of OTC drugs. Therefore, they must be aware about the irrational and inappropriate usage of OTC drugs might be more harmful than useful to the patients. However, limited data are available on health care facilities, comprising the knowledge, attitude and practice of self-medication of OTC drugs among freshman students in Nepal. Hence, this study aimed to assess the knowledge, attitude and practice of first year medical and dental students towards the self-

medication of OTC drugs.

METHODS

Study design, setting and population: An institution based descriptive cross-sectional study design was conducted to assess the knowledge, attitude and practice (KAP) on self-medication of OTC drugs among first year MBBS and BDS undergraduate students of Gandaki medical college teaching hospital and research center (GMCTHRC).

Inclusion Criteria: Students who were studying in the MBBS and BDS first year were included in the study.

Sample size and sampling technique: A total of 115 students were present in the first year MBBS and BDS and census method was applied to collect the data from the respondents.

Data collection tool and techniques: It was structured and non-interventional questionnaire study. A structured questionnaire was prepared after reviewing the validated questionnaire from relevant studies with few modifications^{3,12,15,16} which was distributed among students after briefing about the purpose of the study and instruction to fill the questionnaire. The anonymity of subjects was maintained by asking them not to write their name and students were not forced to participate during the study period. An adequate time was given to fill up the questionnaire and the filled questionnaires were collected after completion. The questionnaire was divided into 4 parts: part 1 of the questionnaire included demographic characteristics of the students: age, gender, and department. Part 2 of the questionnaire assessed the participant's knowledge by using a set of eight yes and no questions and a score of equal to or below the median knowledge cumulative score of 8 demonstrated bad knowledge and a score above the median knowledge cumulative score of 8 indicated good knowledge. Part 3 of the questionnaire assessed the participant's attitude about self medication by using a set of three yes and no questions and a score above the median cumulative attitude score of 3 demonstrated negative attitudes and a score above the median cumulative attitude score of 3 indicated positive attitude. Part 4 of the questionnaire assessed the practice towards self-medication to the students by using a set of four yes and no questions and a score equal to or below the median cumulative practice score of 4 demonstrated bad practice and a score above the median cumulative practice score of 4 indicated good practice. Apart from these questions there are three more questions which assessed the most common source of drugs for self-medication, purchase of

drugs for self-medication by using brand name or generic name and the most common drugs for the self-medication. The performance was assessed by scores (0 = wrong response and 1 = correct response).¹⁷

Data analysis: The survey was descriptive and the collected data were entered into Microsoft excel 2007 results were analyzed using Statistical Package for Social Science (SPSS) version 21.0. All qualitative variables were presented using descriptive statistics with frequency and percentages. Chi-square analysis was conducted to compare the KAP of MBBS and dental students. A P-value of <0.05 was taken to declare statistical significance.

Ethical Considerations: Ethical approval was obtained from the Institutional review committee of the GMCTHRC (Reference number 06-11-2074). Informed consent was also obtained from each respondent after explaining the purpose of the study. Participant's confidentiality was guaranteed by collecting the data anonymously. The data was collected from first week of May to last week of July 2018.

RESULTS

Table 1 presents the socio-demographic characteristics of the respondents. Nearly half of the students (46.1%) were 19 years of age. All of them were single. More than half (60.9%) of the respondents were female. Majority of respondents (78.3%) were from MBBS background.

Table 1: Socio-demographic characteristics of respondents (n=115)

Characteristics	Number	Percentage
Age (in years)		
18	23	20.0
19	53	46.1
20	36	31.3
21	3	2.6
Mean age ± SD=19.16±0.775		
Gender		
Female	70	60.9
Male	45	39.1
Department		
MBBS	90	78.3
BDS	25	21.7

Table 2 shows the knowledge of students towards self-medication of OTC drugs. Among 115 students, 35.7% believed that OTC drugs are safe drugs to consume. Majority of them agreed that continue use of OTC drugs

leads to the adverse effects and drug dependency. Though most of them were correct about the proper use of OTC drugs but only 78.3% students were aware regarding the drug- drug interaction caused by OTC drugs with the prescription drugs. Most of them (94.8%) agreed that the instruction on the label of the drug should be followed. Only 53.9% students knew that OTC drugs are categorized as group Ga drugs in Nepal. Similarly, only 66.9% students knew that prescription only drugs are categorized as group Ka and Kha in Nepal.¹⁸

Table 2: Knowledge of students towards self-medication of OTC drugs (n=115)

Characteristics		MBBS	BDS	Total	Chi-square	P-value
		(n=90)	(n=25)	Mean (SD): 6.130(1.246)		
		Frequency (%)	Frequency (%)	Frequency (%)		
K1. Are OTC drug safe to consume?	Yes*	32 (35.5)	9 (36)	41 (35.7)	0.002	0.967
	No	58 (64.5)	16 (64)	74 (64.3)		
K2. Do continuous use of OTC drugs results in adverse effects?	Yes*	87 (96.6)	25 (100.0)	112 (97.4)	0.856	0.355
	No	3 (3.4)	0 (0)	3(2.6)		
K3. Continuous use of OTC drugs may results in dependency.	Yes*	85 (94.4)	25 (100.0)	110 (95.7)	1.452	0.228
	No	5 (5.6)	0 (0)	5 (4.3)		
K4. OTC drug should be taken according to recommended dose.	Yes*	82 (91.1)	22 (88.0)	104 (90.4)	0.219	0.640
	No	8 (8.9)	3 (12)	11 (9.6)		
K5. The instruction on the label of OTC drug must be followed.	Yes*	85 (94.4)	24 (96.0)	109 (94.8)	0.096	0.757
	No	5 (5.6)	1(4)	6 (5.2)		
K6. OTC drug could interact with other prescribed drugs.	Yes*	70(77.7)	20 (80.0)	90 (78.3)	0.57	0.812
	No	20 (22.3)	5	25		
K7. Group Ga are only the OTC drug in Nepal.	Yes*	48 (53.3)	14 (56)	62 (53.9)	0.56	0.813
	No	42 (46.7)	11 (44)	53(46.1)		
K8. Group Ka and Kha are the prescription drugs in Nepal.	Yes*	62 (68.8)	15 (60)	77 (66.9)	0.699	0.403
	No	28 (31.2)	10 (40)	38 (33.1)		

*Correct response

Table 3 reveals the attitude and practice of students towards self-medication of OTC drugs. Majority of them (99.1%) agreed that pharmacist must be aware about the possible side effect of the drugs and should provide the appropriate information regarding the rational use of the drugs while dispensing. But before dispensing the drugs proper clinical history and medication history should be taken. Only 82.6% students were correct in this aspect.

Out of 115 students only 37.4 % students knew about the correct dose and 46% students knew the correct frequency and duration of the drugs. Those who did not get relief from the OTC drugs (11.3%) mention that they went to the hospital for the further treatment. Moreover, majority of them bought the drugs by brand name for self-medication from the retail pharmacy and antipyretics (48.7%) was the most commonly used OTC drug for self-medication.

Table 3: Attitude and Practice of students towards self-medication of OTC drugs.

Characteristics		MBBS (n=90)	BDS (n=25)	Total Mean (SD): 2.808(0.456)	Chi- square	P-value
Attitude related questions						
A1. Clinical history should be taken before dispensing the OTC drugs.	Yes*	73 (81.1)	22 (88.0)	95(82.6)	0.646	0.421
	No	17 (18.9)	3 (12)	20 (17.4)		
A2. Pharmacist should aware the possible side effects of the drugs.	Yes*	89 (98.8)	25 (100.0)	114(99.1)	0.280	0.597
	No	1(1.2)	0 (0.0)	1 (0.9)		
A3. Pharmacist should provide the information of the drug.	Yes*	89 (98.8)	25 (100.0)	114(99.1)	0.280	0.597
	No	1(1.2)	0 (0.0)	1 (0.9)		
Practice related questions				Mean (SD): 2.026(1.029)		
P1. Did you know the correct dose of a drug?	Yes*	33 (36.6)	10 (40)	43 (37.4)	0.093	0.761
	No	57(63.4)	15 (60)	72 (62.6)		
P2. Did you know correct frequency and duration of a drug?	Yes*	41 (45.5)	12 (48)	53(46.0)	0.47	0.828
	No	49 (54.5)	13 (52)	62 (54)		
P3. Did you ever combine two or more medicine as per instruction?	Yes*	26 (28.8)	9 (36)	35 (30.4)	0.467	0.494
	No	64	16 (64)	80 (69.6)		
P4. Have you got relief?	Yes*	79 (87.7)	23 (92)	102 (88.7)	0.348	0.555
	No	11 (12.3)	2 (8)	13 (11.4)		
The most common source of drug for self medication.	Retail Pharmacy	85 (94.4)	24 (96)	109 (94.8)	-	-
	Family and friends	5 (5.6)	1 (4)	6 (5.2)	-	-
Drugs are purchased from the pharmacy by:	Brand name	70 (77.77)	14 (56)	84 (73.04)	-	-
	Generic name	20 (22.23)	11 (44)	31(26.96)	-	-
The most commonly used OTC drugs for self-medication –	Antipyretic	45 (50)	11 (44)	56 (48.70)	-	-
	Analgesic	30 (33.3)	6 (24)	36 (31.30)	-	-
	Cold and cough	10 (11.1)	5 (20)	15 (13.04)	-	-
	Vitamins	5 (5.6)	3 (12)	8 (6.960)	-	-

*Correct response

Table 4 depicts the level of Knowledge, attitude and practice of the respondents. Majority of them (90.4%) have good knowledge and positive attitude (99.1%) regarding the self medication of OTC drugs. Despite good knowledge and attitude only 37.4% students had good practice in the rational use of the OTC drugs.

Table 4: Respondents' Level of knowledge, attitude and practice (n=115)

Characteristics	Department	Level		Chi-Square	P-value
		Good Frequency (%)	Poor Frequency (%)		
Knowledge	MBBS	80 (88.889)	10 (11.111)	1.144	0.452
	BDS	24 (96.0)	1 (4.0)		
	Total	104 (90.434)	11 (9.566)		
	Mean (SD)	6.361(1.001)	3.7 (0.948)		
Attitude	MBBS	89 (98.889)	1 (1.111)	0.597	1.000
	BDS	25 (100.0)	0 (0)		
	Total	114 (99.130)	1 (0.869)		
	Mean (SD)	2.808±0.456	1 (0.869)		
Practice	MBBS	33 (36.667)	57 (63.333)	0.093	0.761
	BDS	10 (40.0)	15 (60.0)		
	Total	43 (37.391)	72 (62.609)		
	Mean (SD)	3.186 (0.393)	1.333 (0.556)		

*Note:-Poor Knowledge ($\leq 50\%$), Good Knowledge ($>50\%$), Negative Attitude ($\leq 50\%$), Positive Attitude ($>50\%$), Poor practice ($\leq 50\%$), Good practice ($>50\%$).¹⁷

Table 5 shows the correlation between knowledge, attitude and practice using Pearson Correlation Test. Knowledge had significant fair positive correlation with attitude ($r=0.228$; $p<0.001$) and no correlation with practice ($r=0.129$; $p=0.085$). In addition, there was no significant correlation between attitude and practice ($r=0.072$; $p=0.221$).

Table 5: Correlation between knowledge, attitude and practice using Pearson Correlation Test

Variables	r-value	P-value
Knowledge and Practice	0.129	0.085
Knowledge and Attitude	0.288*	0.001
Attitude and Practice	0.072	0.221

*Correlation is significant at the level of 0.001.

DISCUSSION

In the current study, there were 115 students which comprised of 39.1% males and 60.9% females. Out of 115 medical and dental students, the prevalence of the practice of self-medication within 6 months was 53 (46.08%). This suggests that self-medication is quite prevalent among them. Similar study conducted in India also reported 45.6% of first year medical students used OTC drugs as it is time saving.¹² In agreement to our findings, high prevalence of self-medication practice among undergraduate have been documented by numerous studies.^{19,20-23}

Among them, 35.7% students believed that OTC drugs are safe drugs to consume. The rational use of OTC drugs should be promoted because OTC drugs are believed to be safe and effective, indeed they are not.²⁴ When adopted effectively the self-medication practice can be beneficial because it may relieve acute pain, reduce treatment cost and physician interaction time. However, when used inappropriately they can cause severe health related complication such as masking the underlying disease and causing several adverse effects. Inappropriate and frequent use of OTC drugs can lead to the inappropriate dosing, drug duplication, drug interaction and treatment failure.^{17,25} Doctors and pharmacists play a crucial role in increasing awareness about self-medication by educating the patients. Majority of them (99.1%) agreed that pharmacist should take the clinical history, keep the patients' medication record and provide the drug information while dispensing the OTC drugs. There was no significant difference identified among the medical and dental students concerning the knowledge, attitude and practice towards self-medication of OTC drugs.

In the current study, the mean knowledge score was 6.13. This finding was consistent with a study conducted in Ethiopia which reported that more than half of the respondents were found to have good knowledge about self-medication of OTC drugs and had a positive attitude.¹⁷

This study found that the most common source of drugs for self-medication was pharmacy (94.4%), and this is in accordance with previous study conducted in Nepal.^{19,20} Majority of them (77.77 %) purchased drugs from pharmacy by brand name. Antipyretics, analgesic, drugs used in cold and cough and vitamins were the drugs used for the self-medication by the study participants. Among them antipyretic drugs (48.70%) were the most commonly used drug for self-medication. This finding was also consistent with findings from previous studies conducted in Addis Ababa, West Bengal, Jammu and Kashmir, Eritrea in which antipyretic and analgesic medications were the most frequently used OTC medications.²⁵⁻²⁸ Due to stress and other educational loads, medical students were usually victims of headaches and fever that usually force them to administer antipyretic and analgesic medications.²⁹ These students have easy access to information from medical books, internet search, senior medical students and pharmacy, so they irrationally use drugs more commonly than general population.²⁵ Though 94.8% participants cited that the instruction on the label of OTC drug must be followed and this can be the source of information as well

but more than half participants did not know the correct dose, frequency and duration of the OTC drugs for self-medication. Moreover, 30.4% of them combine the OTC drugs for better therapeutic outcomes.

According to WHO (May 2010) more than 50% of all medicines are not correctly prescribed, dispensed, and sold; and more than 50% of patients take their drugs incorrectly in the developing countries. In addition to this, virtually all the drugs are available here without prescriptions and self-medication are highly common.³⁰ In agreement to a fact sheet of the WHO in our study also more than 50% of the students had bad practice and incorrect use of the drugs.

Our study showed that there was weak positive correlation between the knowledge and the attitude regarding the self-medication of OTC drugs. Indeed, 90.4% students had good knowledge and because of this almost all the students (99.1%) had positive attitude ($p < 0.001$) towards the self-medication of OTC drugs. They have positive attitude with good theoretical knowledge however, good practice was less (37.4%). So, this study strongly recommends them to use their theoretical knowledge into practice.

CONCLUSIONS

In this study we concluded that majority of first year medical and dental students had good knowledge and positive attitude towards the OTC drugs but they were not clear about the correct dose, frequency and duration of the drugs. This showed that the knowledge hadn't been fully practiced into action. Therefore, awareness program regarding the patient medication safety should be provided to the students for improving the correct practice of OTC medicines.

LIMITATION OF THE STUDY

Our study had limitations. The limitation of this study included that the study involved lesser number of students and only from first year of a single institute which might not be the representation for all medical students. The limitation could be concerning the study participants, in which the study could have been more applicable if other health professional students and/or students from the whole years of study (1st year to final year) were included. Other limitation is that such type of study should be conducted in the community as well because OTC drugs are commonly used by the public.

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