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Self-medication: Prevalence among Undergraduates in Kathmandu Valley

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Authors' contributions

This work was carried out in collaboration among all authors. Author KB designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author MD prepared the manuscript and all the necessary supervision and author SS managed the data collection, data entry and analyses of the study. Author AA managed the statistical analysis. All authors read and approved the final manuscript.

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ABSTRACT

Background: Self-medication is defined as the use of medicines to treat self-recognized or self-diagnosed conditions or symptoms, instead of seeking advice from professionals.
Aim: Our study was aimed to assess knowledge, attitude and practice of self-medication among undergraduates in different colleges of Kathmandu valley.
Methods: Descriptive cross-sectional study was carried out among undergraduates of Kathmandu valley. A semi-structured questionnaire was distributed to students in 4 different colleges. Chi-square test was used to determine statistical significance. Likert's scale was used to measure attitude.
Results: 240 students participated in this study. Totally, (92.9%) students had known and taken medicine without doctor's prescription. More than half of the participants (56.6%) had good knowledge on self-medication and nearly three quarter (74.7%) of the respondents had a positive attitude regarding self-medication. Fever, cough/cold and aches/pain were the most common

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symptoms for self-medication, thus making antipyretics and analgesics the most popular self-medication drugs. Pharmacists and family were the major source of information regarding self-medication.

Conclusion: Based on the findings, the prevalence of self-medication was high (94.9%). Majority respondents had good knowledge of the advantages and disadvantages of self-medication but still practiced it.

Keywords: Knowledge; attitude; practice; prevalence; self-medication; undergraduates; Nepal.

1. INTRODUCTION

Self-medication is defined as the use of medicines by a patient on his own initiative or on the recommendation of a non professional or a lay person instead of seeking advice from a health care provider [1]. This includes acquiring medicines without an authorized prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home. Self-medication may also be defined as the use of nonprescription medicines (over the counter drugs) by people on their own initiative. Self-care, including self-medication, has been a feature of healthcare for many years [2].

The World Health Organization (WHO) stated that self-medication has the potential to do good as well as cause harm since it involves the use of drugs. It has appropriately pointed out that responsible self-medication can help prevent and treat diseases that do not require medical consultation and provides a cheaper alternative for treating common illnesses [3]. Self-medication is a common practice as it provides a low cost alternative for people. A large number of people, when they fall sick, do not consult the physician.

The youth is especially exposed to the media and the increased advertising of pharmaceuticals poses a larger threat to the young population. The misuse of non-prescription drugs amongst students has become a serious problem. Considering the biology and physiological profile of adolescents and assuming that young adult students have low perception of the risk; more knowledge about the drugs and their use and therefore usually avoid seeing the physicians for their medical problems; are likely to practice self-medication [4].

2. METHODS

Descriptive cross-sectional study was conducted in colleges of Kathmandu valley from June-September 2017 by using pretested, self-administered and semi structured questionnaire. The sample size for this study was 240 and was determined taking into consideration the following factors; prevalence of self-medication based on a study in knowledge, attitude and practice of self-medication among basic science undergraduate medical students in a medical school in western Nepal [5] ,a confidence interval of 95% and an acceptable margin of error of 5% (0.05). Stratified sampling frame facilitated the selection of college; colleges were divided into 2 strata: management and science from a list of Pokhara University affiliated colleges of Kathmandu valley and lottery method was used to select 4 colleges (2-management colleges and 2 health-science colleges). All the health science and non-science/management undergraduates studying in colleges in Kathmandu valley were included in the study. Permission was taken from the IRC of Nobel College, respective colleges and from each participant before data collection. Also affirmation that they were free to withdraw consent and to discontinue participation at any time was assured. Privacy and confidentiality of collected information was ensured through use of anonymous data collection tools. Content validity of the instrument was established through extensive literature review followed by consultation with experts, research advisor while developing of questionnaire. The date of data collection was pre informed to the concerned authorities of the respective colleges and those students who were not present during the day of data collection were excluded from the study. Five out of total 240 students did not provide the complete information so were excluded for further analysis except the demography. Data entry and analysis was done using MS-Excel and SPSS version 20. The results were further analyzed through mean and standard deviation and represented in the form of Tables. We determined the knowledge about self medication using multiple questions.The students' attitudes were measured using five items rated on a three-point likert scale as; (1) agree (A), (2) disagree (D) and (3) neutral (N).

Using the five scales for twelve questions The students' practice was measured identifying whether self medicated or not. Chi-square test was used to measure association between dependent and independent variables. Also the logistic regression was used considering p-value of less than 0.05 ($p < 0.05$) indicates statistical significance.

3. RESULTS

The mean age ±SD of respondents was 20.1±1.680 years. More than half (65%) of respondents were female. More than forty percent (41.3%) of respondents were Brahmin. Almost all the respondents (90.4%) were hindu. Almost all the respondents (96.3%) were single. More than half of the respondents (76.7%) lived nuclear family. More than half (51.3%) were management/non-science students and rest were health-science/science students. Almost all had heard about self-medication (93.9%) while only (7.1%) had not heard about it. Family/relatives (48.2%) were the main source of information regarding self-medication. (Table 1).

Five out of total 240 participants did not filled the self administered questionnaire except the demographic information thus, were excluded for the further analysis.

Less than half (43.8%) only had knowledge on self medication. More than half (55.3%) of the respondent answered correctly about the use of antibiotics. More than half (52.3%) of them knew about the use of analgesic. Slightly more than three-fourth respondent (77.4%) answered correctly knew about antipyretics. Majority

Table 1. Socio-demographic characteristics of the participants (n=240)

Variables	Frequency
Age Mean(SD)	20.1 ± 1.68 years
Gender	
Female	156(65%)
Ethnicity	
Brahmin	99(41.3%)
Chhetri	56(23.3%)
Newar	44(18.3%)
Others	41(17.1%)
Religion	
Hindu	217(90.4%)
Buddhist	18(7.5%)
Christian	3(1.3%)
Muslim	2(0.8%)
Relationship status	
Single	231(96.3%)
Family type	
Nuclear family	184(76.7%)
Stream	
Management	123(51.3%)
Health-science	117(48.7%)
Educational level	
2nd semester	145(60.4%)
4th semester	30(12.5%)
6th semester	31(12.9%)
8th semester	34(14.2%)
Heard about self-medication	
Yes	223(92.9%)
Source of information (multiple responses)	
Family/Relatives/Friends	164(73.9%)
Pharmacists/Previous experience with medicine	75(33.8%
Advertisements/media/magazines/newspaper	77(34.7%)
Textbooks	53(23.9%)
Self-decision	27(12.2%)
Others	9(4.1%)

(39.4%) of the respondents had knowledge regarding anesthetics. Almost all the respondents (90.2%) knew the use of antiseptics. Two-third of the respondents (64.7%) knew that antibiotic overuse can result in antibiotic resistance. Almost half (47.7%) correctly answered the all (saves times, saves doctors fees, provides quick relief, treats minor illness) as the advantages of self-medication. Similarly, nearly half (45.1%) of the respondents answered all the disadvantages of self-medication correctly. Eighty-nine (37.9%) of the respondents gave a correct answer regarding common symptoms for self-medication.

Table 2. Knowledge about self-medication (n=235)

Variables	Frequency
Self-medication	
① **S**elf-medication is the treatment of common health problems with medicines without a doctor's prescription through pharmacies.	86(36.6%)
② Self-medication refers to the practice where a person can treat their illnesses with medicines that don't require a medical prescription to be sold.	35(14.9%)
③ Both	103(43.8%)
④ None	11(4.7%)
Antibiotics are used to:	
① Treat diseases caused by bacteria (Urinary tract infection, pneumonia)	130(55.3%)
② Treat diseases caused by virus (like common cold, flu, sore throat, cough)	105(44.7%)
Analgesic is used for:	
1. Relief from pain/reducing pain	104(44.3%)
2. To treat headache, muscle strain, fever, bruising, or arthritis.	5(2.2%)
3. Both	123(52.3%)
Antipyretic drug reduces fever:	
Yes	182(77.4%)
Antipyretic helps relief from pain:	
Yes	166(70.6%)
Anesthetic is used :	
① To prevent pain during surgery	63(26.8%)
② Unconsciousness	49(20.9%)
③ Both	93(39.6%)
Antiseptics is used for prevention of germ growth near burns, cuts and wounds	
Yes	212(90.2%)
Antibiotics are same as anti-inflammatory	
Yes	26(11.1%)
Antibiotic overuse can result in antibiotic resistance	
Yes	152(64.7%)
Advantages of self-medication (multiple responses)	
① Saves time	23(9.8%)
② Saves doctors fees	25(10.6%)
③ Provides quick relief	70(29.8%)
④ Treats minor illness	78(33.2%)
⑤ All	113(48.1%)
Disadvantages of self-medication(multiple responses)	
① The risk of adverse drug reactions	77(32.8%)
② The risk of using inappropriate drugs	56(23.8%)
③ The diagnosis may be wrong	65(27.7%)
④ Side effects	66(28.1%)
⑤ Prolonged duration of use	10(4.3%)
⑥ Drug interactions and poly pharmacy	12(5.1%)
⑦ All	106(45.1%)

Variables	Frequency
⑧ Others	6(2.6%)
Most common symptoms for self-medication (multiple responses)	
① Fever/Allery	116(49.3%)
② Diarrhea and vomiting	54(23%)
③ Aches and pain	68(28.9%)
④ Cough and cold	74(31.5%)
⑤ Gastritis/acidity	60(25.5%)
⑥ All	90(38.3%)
Side effects of self-medication	
yes	177(75.3%)
If yes, (multiple responses)	
① Allergy	72(40.7%)
② Fatigue/Sleep	112(63.3%)
③ Upset stomach/gastro intestine	55(31.1%)
④ All	49(27.7%)
⑤ Others	6(3.4%)

Three quarter (75%) said they knew about side effects of self-medication, among them majority (40.7%) answered allergy and sleep (Table 2).

It is clear that majority (87.2%), (97.4%), (88.9%) and (83.9%) checked the label of medicine, checked the expiry date of medicine, checked the dose of medicine and were aware that the course of medicine should be completed respectively (Table 3).

More than half (57%) disagreed that self-medication is acceptable. (66.4%) strongly agreed that self-medication would be harmful if they are taken without proper knowledge of drugs and disease. Nearly half of the respondents (47.2%) strongly agreed that course of medicine should be completed. Most of the respondents (45.5%) agreed that pharmacist is a good source of advice / information about minor medical problems. (27.7%) disagreed to the statement antibiotics should be used for common colds. Also, (40.4%) neither agreed nor disagreed self medication is a good practice. Almost half respondents (48.1%) agreed that self medication can be harmful. More than half of the respondents (65.1%) strongly agreed that it is necessary to consult a medical doctor before taking a new medicine. Only (4.3%) strongly disagreed self-medication is safe for use. Six (2.6%) strongly agreed that people are comfortable with the use of self-medication. Nearly (39.6%) strongly agreed that self-medication may lead to wrong use of drug, delay in diagnosis of disease use of incorrect drug for incorrect period of time and may lead to adverse drug reactions. (36.2%) were neutral regarding the statement self-medication is a part of self-care and it needs to be encouraged (Table 4).

It is clear that almost all (94.9%) the respondents had taken medicine without doctor's prescription. Among them, fever was the main health problem for what they self-medicated (51.6%). More than half of the respondents (61.9%) did not face any side-effect when self-medicated. More than half (60%) of the respondents felt sleepy as side-effect. Almost (46.6%) practiced self-medication for minor illnesses. Family/ relatives were the main source of information when they self-medicated (44.8%). Almost all the respondents

Table 3. Awareness on self-medication (n=235)

Variable	Frequency
Check the label of medicine	
Yes	205(87.2%)
Check the expiry date of medicine	
Yes	229(97.4%)
Check the dose of medicine	
Yes	209(88.9%)
Course of medicine should be completed	
Yes	197(83.8%)

Table 4. Attitude towards self-medication (n=235)

Questions		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
①	Acceptable.	6(2.6%)	15(6.4%)	52(22.1%)	134(57%)	28(11.9%)
②	Would be harmful if they are taken without proper knowledge of drugs and disease.	156(66.4%)	62(26.4%)	14(6%)	2(0.9%)	1(0.4%)
③	Course of medicine should be complete.	111(47.2%)	87(37%)	26(11.1%)	9(3.8%)	2(0.9%)
④	Pharmacist is a good source of advice/ information about minor medical problems.	76(32.3%)	107(45.5%)	37(15.7%)	14(6%)	1(0.4%)
⑤	Antibiotics should be used for common colds.	33(14%)	60(25.5%)	59(25%)	65(27.7%)	18(7.7%)
⑥	Is a good practice?	10(4.3%)	36(15.3%)	95(40.4%)	79(33.6%)	15(6.4%)
⑦	Can be harmful.	28(11.9%)	113(48.1%)	68(28.9%)	17(7.2%)	9(3.8%)
⑧	Is necessary to consult a medical doctor before taking a new medicine.?	153(65.1%)	67(28.5%)	12(5.1%)	1(0.4%)	2(0.9%)
⑨	Is safe for use?	12(5.1%)	51(21.7%)	112(47.7%)	50(21.3%)	10(4.3%)
⑩	People are comfortable with the use of self-medication.	6(2.6%)	19(8.1%)	83(35.3%)	114(48.5%)	13(5.5%)
⑪	May lead to wrong use of drug and may lead to adverse drug reactions.	93(39.6%)	91(38.7%)	39(16.6%)	8(3.4%)	4(1.7%)
⑫	Is a part of self-care and it needs to be encouraged?	14(6%)	29(12.3%)	85(36.2%)	82(34.9%)	25(10.6%)

Table 5. Practice on self-medication (n=235)

Variables	Frequency
Taken medicine without doctor's prescription	
yes	223(94.9%)
Health problems (Multiple responses)	
① Fever/Allergy	147(65.9%)
② Diarrhea and vomiting	64(28.7%)
③ Aches and pain	84(37.7%)
④ Cough and cold	107(48%)
⑤ Gastritis/acidity	61(27.4%)
⑥ All	47(16.6%)
⑦ Others	4(1.8%)
Drugs used (Multiple responses)	
① Antibiotics/Antivirals	139(62.3%)
② Antipyretics/Analgesics	254(113.8%)
③ Antiseptics/Antacids/cough syrups	282(126.8%)
④ Vitamin	77(34.5%)
⑤ Birth control pills	5(2.2%)
⑥ Others	31.3%)
Faced side-effects	
Yes	85(38.1%)
If yes,(Multiple responses)	
① Allergy/sleep/fatigue	85(100%)
② Upset stomach/gastrointestinal	19(22.4%)
③ All	4(4.7%)
④ Others	3(3.55)
Reasons for practicing self-medication(multiple responses)	
① Not necessary to go to doctor	51(22.9%)
② Previous experience/previous prescription	90(40.9%)
③ Lack of time/Expensive	84(39%)
④ Left over medicines at home	22(9.9%)
⑤ Menstrual problems	27(12.1%)
⑥ Quick reliefs/Minor illness	198(88.8%)
Source of information when self-medicated: (multiple responses)	
① Self/previous prescription	79(35.4%)
② Family/relatives/Friends	144(64.5%)
③ Pharmacy	86(38.6%)
④ All	38(17%)
⑤ Others	6(2.7%)
Check expiry date	
yes	222(99.6%)
Complete course of medicine	
Yes	118(53.9%)
Reasons for not following self-medication practice (multiple responses)	11(91.7%)
① Afraid of adverse drug reaction/wrong diagnosis	8(66.7%)
② Consulting doctor rather than self-medication	4(33.3%)
③ Self-medication is not good for health.	1(8.3%)
④ Others(specify)	

(90.1%) mostly checked the expiry date of medicine while self-medicating. More than half of the respondents (52.9%) completed their course of medicine while self-medicating (Table 5).

Slightly more than half (56.6%) had good knowledge on self-medication among total respondents where the mean knowledge score was 20.92.It is shown that nearly three quarter

(74.7%) of the respondents had a positive attitude regarding self-medication where mean attitude score was 23.04 (Table 6).

The overall model respondent education stream and Ethnicity was significant. Health sciences students had 4 times higher knowledge on self-medication in comparison to the management stream student [OR 0.222; 95%CI (0.123-0.399). Similarly, in the ethnicity of the Respondent newar had higher significant then brahmin, chhetri and other caste. Where self-medication knowledge of newar has 2 times more knowledge than Brahmin [OD 2.6.13; 95% CI (1.057-6.465] (Table 7).

4. DISCUSSION

The study of self-medication practice among undergraduates is very important as they are a segment of the population that is highly educated and with access to information regarding their health.

Self-medication is an area where governments and health authorities need to ensure that it is done in a responsible manner, ensuring that safe drugs are made available over the counter and the consumer is given adequate information about the use of drugs and when to consult a doctor. There is a paucity of studies on self-medication among students.

This requires particular attention for the reasons that higher education level and younger age are risk factors for self-medicating with antibiotics, although the practice may be modifiable through education. At an individual level, knowledge and beliefs affect health-related behaviour, including behaviour concerning antibiotics use. Misconceptions about antibiotics among students potentially cause antibiotic abuse. Given that abuse of antibiotics in undergraduates continues to be a significant problem in both developed and developing countries, reducing misconceptions regarding antibiotic use among this population is imperative. Knowledge, attitudes and practices regarding self-medication with antibiotics in developed countries, among undergraduates in particular, have been widely reported.

In several studies it has been found that inappropriate self-medication results in wastage of resources, increases resistance of pathogens and generally entails serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence. On the other hand, if done appropriately, self-medication can readily relieve acute medical problems, can save the time spent in waiting to see a doctor, may be economical and can even save lives in acute conditions [6-8]. It is now accepted that self-care in the form of responsible self-medication can be beneficial for patients, healthcare providers, the pharmaceutical industry and governments. The World Health Organization (WHO) has also pointed out that responsible self-medication can help prevent and treat ailments that do not require medical consultation and provides a

Table 6. The knowledge and attitude Score (n=235)

	n (%)	Mean score
Knowledge		
Good	133(56.6%)	20.92 ± 7.156
Poor	102(43.4%)	
Attitude		
Positive	178(75.7%)	23.04±3.870
Negative	57(24.3%)	

Table 7. Logistic regression model on self-medication

	Model	Significance	OR	95% CI	
Stream of Respondent		< 0.001			
Management	Reference				
Health Sciences	-1.507	<0.001	0.222	0.123-0.399	
Ethnicity of the Respondent		0.023			
Brahmin	1				
Chettri	-0.149	0.708	0.862	0.394	1.882
Newar	0.961	0.038	2.613	1.057	6.465
Other	0.542	0.264	1.720	0.664	4.457

cheaper alternative for treating common illnesses [1,3]. However, it is also recognized that self-medication must be accompanied by appropriate health information.

The youth is especially exposed to the media and the increased advertising of pharmaceuticals poses a larger threat to the young population. The misuse of non-prescription drugs amongst students has become a serious problem Considering the biology and physiological profile of adolescents and assuming that young adult students have low perception of the risk; more knowledge about the drugs and their use and therefore usually avoid seeing the physicians for their medical problems; are likely to practice self-medication. Therefore, self-medication has many demerits which may directly harms to our physical as well as mental health.

4.1 Source of Information

The main source of information in this study was family/relatives (48.2%) which contradicts from the study conducted among medical students, where pharmacist (60.31%) was the main source of information [9]. Similarly, the results of study conducted by other similar studies contradicts with the result of this study where the most common source of information of these previous studies were previous experience (54%), instructions (45.7%), self-decision (41, 64%), previous experience (41.5%), chemist shop (79.3%) and reading material (183, 52.3%) respectively [4,5,10-13]. Since, most of the respondents of this study were in their late teens and early 20's, they consulted with their family for taking medicine rather than pharmacists, self-decision or previous experiences.

4.2 Knowledge and Awareness

The results of this study was quite similar to that conducted in western China where 28% of students incorrectly believed that antibiotics are the same as anti-inflammatory and in our study 11.1% answered incorrectly. In the same study, in terms of knowledge regarding antibiotic resistance, most students knew that antibiotic overuse can result in antibiotic resistance (89.5%), which was similar to our study where most respondents (64.7%) knew that antibiotic overuse can result in antibiotic resistance [10].

In present study, the most commonly used drugs for self-medication were antipyretics (64.3%), analgesics (62.6%), and cough syrups (45.5%). These results are in accordance with another study done among university students in New Delhi where antipyretics (76.5%), analgesics (75%), and cough suppressants (38.5%) were most commonly used drugs for self-medication [14]. Similarly, in the study conducted in Chitwan Medical College, Bharatpur and in New Delhi, the most common symptoms for self-medication was cold/common cold and fever which is quite similar to that of our study where fever was the most common symptom [9,14]. One of the reasons for this could be attributed to fever followed by cough and cold being the most common indication for practicing self medication as seen in our study.

Our study revealed minor illnesses (39.1%) and quick reliefs (36.6%) as major reason for self-medication, which contradicts with the previous study conducted in New Delhi where among the major reasons for seeking self-medication, 31.0% did not find it necessary to consult a doctor followed by 25.0% who preferred to wait and watch, 21.3% had lack of time. But in our study only 19.6% (19.6%) not necessary to go to doctor, only 13.6% had lack of time (13.6%) and which were the minor reasons considered for self-medication. However, in that study 10.4% felt doctor's fee was too high which was similar to our study where 10.2% felt high doctor's fee (10.2%) [14].

In the study undertaken among first year medical students, the most important advantages were saving time, doing away with the need to go to a doctor for a minor illness, being economical and providing quick relief which was similar to the results of present study [15]. The most serious disadvantages of self-medication in previous study as perceived by the respondents were the risk of adverse drug reactions (32.8%) which was similar to present study where 32.8% respondents said risk of adverse drug reactions as one of the main disadvantages [15]. About 66% of students agreed to the fact that self-medication saves time while in our study it was lower (9.8%) [12].

The awareness about side effects was 56.1% in the study conducted in New Delhi which is lower than present study, 75.3% were well known about side-effects; expiry date of the drugs used was 93.6% in previous study which was almost similar to this study i.e. 97.4% checked the expiry date of drugs [14]. However, our study had similar results to the study undertaken to evaluate various aspects of self-medication in

medical students, where it was found that majority of students (79.1%) read labels and in our study it was (87.2%). The results of present study is similar with the previous study where in previous study, dose and frequency of drugs was 86.6% (86.6%), adverse effects of medicines used (82.9%), expiry date (92.6%), and importance of completing course of medicines (91.7%) while that in our study was (88.9%), (75.3%), (97.4%) and (83.8%) respectively [13]. Similarly, the result of study conducted on coastal south India shared similar result with our study in which almost all the respondents checked expiry date [12]. Since, the respondents are literate and know about most common things like check expiry date; this might be the reason for higher level of awareness.

Concerning the knowledge score, the mean knowledge score was (20.92) in present study. This contradicts with the result of previous studies which was (73.45) and (74.54) conducted on India and western Nepal respectively [5,16].

In previous study conducted in Chitwan, the result showed that 52% respondents had good level of knowledge and 48% respondents had poor level of knowledge regarding self-medication which is similar to present study where 56.6% had good knowledge and 43.4% had poor knowledge [9].

The respondents had a fairly good knowledge of the advantages and disadvantages of self-medication. Many of them correctly perceived self-medication as time-saving, not necessary to go to a doctor for minor illness and providing quick, easy and convenient relief. These perceptions are similar to those reported by the WHO that self-medication provides a cheaper and convenient alternative for treating common minor illnesses. These are important factors favoring self-medication and have been reported in other studies too [3].

4.3 Attitude

The results of the statements self medication is acceptable and pharmacists is a good source of information/advice about minor medical problems was similar i.e. majority said neutral and majority agreed respectively in the study conducted in chitwan [9] and in present study. However, the result of present study contradicts to the result of previous study regarding another two statements self-medication would be harmful if they are taken without proper knowledge of drugs and disease; and the statement the course of medicine should be complete where in both statements majority strongly agreed in present study while majority strongly disagreed in previous study [9]. Also, in the study conducted among first year medical students., the majority (76.9%) of the respondents had a positive attitude towards self-medication and favored self-medication saying that it was acceptable, while in present study it was neither acceptable nor unacceptable [15].

In the attitudes and beliefs section of the study conducted in undergraduate students of Xi'an Jiaotong University, western China, more than (10%) of students incorrectly believed that antibiotics should be used for common colds while the result is slightly higher (25.5%) in present study [10].

For the result of statement self-medication is a good practice, it was contradictory with study conducted of Gutema et al as it was found that out majority (52.30%) disagreed in their study while majority were neutral in present study [11].

In a study conducted to determine the prevalence, attitude and knowledge of self-medication amongst university students of Karachi, Pakistan majority agreed that self medication can be harmful; and majority agreed that it is necessary to consult a medical doctor before taking a new medicine. This result was similar to present study [17].

In present study, it was found that respondents were neutral to the statement: self-medication is safe for use which was similar to that of study conducted among college students in Delhi. However, the result of statement: people are comfortable with the use of self-medication was found to be contradictory to the previous study where respondents mostly disagreed in present study and most respondents were neutral in previous study. Majority of the students agreed to the fact that self-medication may lead to wrong use of drug, delay in diagnosis of disease use of incorrect drug for incorrect period of time and may lead to adverse drug reactions in previous study while in present study, majority strongly agreed [12]. The study conducted in Coastal South India showed most of the participants agreed that self-medication was a part of self-care and it needs to be encouraged, the result was not similar to present study as majority were neutral regarding this statement [18].

The mean (SD) attitude score of a study conducted among undergraduates by Gyawali et

al was 67.18 (5.68) while that in present study was 23.04 (3.870) [5].

Majority had positive attitude in present study and previous study which shows similar result [9]. The majority of the respondents had a positive attitude towards self-medication; the reason may be respondents neither agreed nor disagreed that it is acceptable, safe for use, it is a part of self care and needs to be encouraged.

4.4 Practice

In our study almost all/majority (94.9%) practiced self-medication. In comparison to our study, the prevalence of self-medication is supported by the study conducted in New Delhi [14], Chitwan [9], western Nepal [5], (Sindh) Pakistan [19], (Karachi) Pakistan [17], Pune [20] and Srilanka [21].

Fever, cough/cold, and aches/pain were the major health problems for which students practiced self-medication in present study. This result was similar with most of the previous studies [9-11,13,15-17,19,22].Analgesics and antipyretics have been reported to be the most commonly used drugs without doctor's prescription in the results of our studies and other studies [5,9,11,12,15,17,22-24]. The high intake of these drugs might be due to health problems like fever, headache, cough/cold and menstrual problem among the respondents.

In present study, data revealed that minor illness, quick relief and previous experience/previous prescription, not necessary to go to doctor were the major reason for self-medication. This result is relevant to various previous studies [6,9,13, 15,17,22,25].

It was found in present study that family/relatives, pharmacy and self/previous prescription were the source of information when self-medicated which was similar to the result of studies of other similar studies.[6,9,12,13,15,17,18,26].

Our findings shared similar result with that conducted in New Delhi where almost all checked expiry date of drugs [12]. Similarly, this result was supported by that conducted in Ethiopia [8]. This might be due to awareness and knowledge about adverse drug effects among the respondents.

Among 12, who did not practice self-medication in present study, majority responded they preferred consulting doctor rather than self-medication; afraid of risk of using wrong diagnosis, missing actual diagnosis and drug dependence; and afraid of adverse drug reaction as the main reason for not following self-medication practice. This result was similar to the ones conducted by Mehta and Sharma [9,15].

4.5 Association

There was no significant difference between attitude score and gender in previous studies which was similar to present study [5,10].

5. CONCLUSIONS

Prevalence of self-medication was high in the educated youth, despite majority being aware of its harmful effects in this descriptive study. Health sciences students had 4 times higher knowledge on self-medication in comparison to the management stream student.

CONSENT

It is not applicable.

ETHICAL APPROVAL

IRB approval has been taken for conducting the study.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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