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A SURVEY OF SELF MEDICATION WITH DIETARY SUPPLEMENTS AMONG PHARMACY STUDENTS OF PUNJAB, PAKISTAN

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ABSTRACT

A consolidated study was conducted on prevalence knowledge and attitude of self-medication with dietary supplements among pharmacy students. We all the members of our group randomly collected data from Pharmacy Departments of different universities (the University of Sargodha, GC University of Faisalabad, and University of Lahore). All the major factors leading to self-medication of dietary supplements were assured by online friends and family and previous experience of taking any dietary supplements. We ascertained different vitamins used by pharmacy students by reviewing questionnaire. Majority of students were using multivitamins. We personally assured all of the students filled the questionnaire and then we analyzed the collected data. And it was the same as we required in accordance to our questionnaire's design. As the results of our study, we found that 60% were female and 40% were male. With accordance to age distribution, no student was above 25. Knowledge about self-medication with dietary supplement was satisfactory and they had a positive attitude towards self-medication with dietary supplements. Prevalence of self-medication with dietary supplements was for good health and gaining energy and it contributes to a proper diet. Regular intake of dietary supplements may eliminate all other deficiencies. Simple questionnaire of our study may be useful for evaluation of different factors contributing towards self-medication.

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Introduction

According to William Osler, "The desire to take medicine is perhaps the greatest feature which distinguishes human from animals". In Self-medication, an individual uses a substance or any exogenous material without prescription for physical or psychological ailment. The intention is to get therapeutic effect but without prescription or professional advice; so, people take supplements to treat their recognized deficiencies [1,2].

Self-medication is defined as "obtaining and consuming drugs without any prescription to treat undiagnosed disorder".

"Self-medication is defined as purchasing and using medication without physician's prescription". Appropriate therapeutic medication requires complete evaluation of symptoms by health practitioners followed by proper prescription filling by the pharmacist [2,3].

Dietary Supplements (Vitamins/Minerals): Dietary supplements are used in foods and beverages. Dietary supplements are not intended to replace food. They include vitamins, minerals, and antacid/calcium supplement products, fiber supplements,

amino acids, performance enhancers, herbs, herbal medicine products, and plant extracts used as dietary supplements. They include products that are taken orally or given by injection and do not include beverages, such as tea, and skin creams. Meal replacement beverages, weight loss and performance booster drinks, and food bars are considered foods, not dietary supplements [4].

Although multivitamin-multi mineral and similar terms (e.g., multisormultiples) are commonly used, they have no standard or defined meaning and can refer to products with widely varied compositions and characteristics [5]. Multivitamin an over-the-counter and often self-prescribed nutritional supplement contains lipid-soluble vitamins (A, D, E and K) and water-soluble vitamins (thiamine (B1), riboflavin (B2), B6, B12, C, folic acid, niacin, pantothenic acid and biotin). Multivitamins may also contain minerals—e.g., calcium, phosphorus, iron, iodine, magnesium, manganese, copper and zinc. Many multivitamin formulas contain vitamins C, B1, B2, B3, B5, B6, B9, B12, biotin, A, E, D2 (or D3), K, potassium, iodine, selenium, borate, zinc, calcium, magnesium, manganese, molybdenum, beta-carotene, and/or iron [6]. Multivitamins are typically available in a variety of formulas based on age and sex, or (as in prenatal vitamins) based on more specific nutritional needs [7]. Reasons for taking MV include to treat or prevent disease, to improve physical performance, sports performance, immune function, mental/memory, or medicinal treatments being too expensive, or family and friends' recommendation [8]. Excessive use of vitamins could lead to vitamin poisoning. MVs providing nutrients at recommended intake levels do not ordinarily interact with medications, with one important exception [9]. People who take medicines to reduce blood clotting, such as warfarin (Coumadin®), should talk with their health care providers before taking any MVM or dietary supplement containing vitamin K. Vitamin K is involved in blood clotting and decreases the effectiveness of warfarin and similar drugs. The dose of medication is determined in part by the amount of vitamin K routinely consumed. The excessive use of MV amongst students has become a serious problem [10,11].

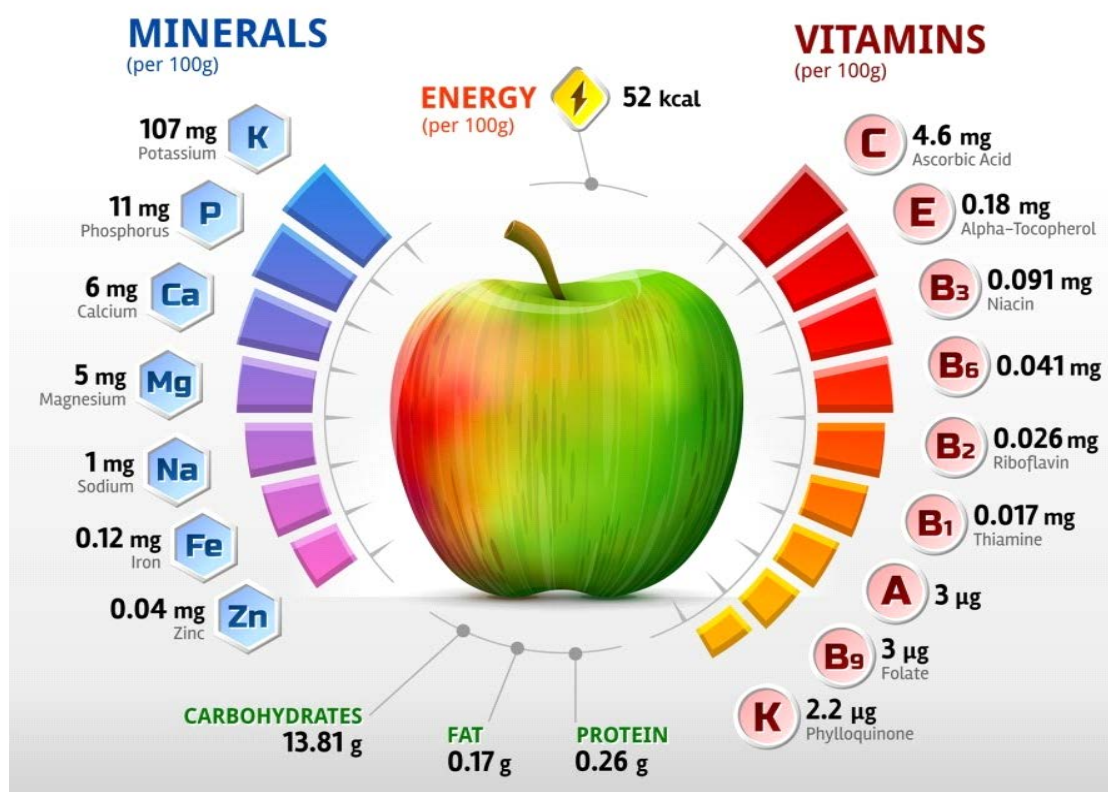


Figure 1.1: supplements with their energy contents

Consequences of self-medication

Dietary supplements are considered to be relatively nontoxic. However, if they are taken in large amount for long duration, their consequences may be dangerous, but these are not evaluated [12]. Supplements are mostly consists of m/v, trace vitamins, or flavonoids. Dietary supplement that contains plant constituents frequently contain unidentified ingredients having unknown health effects. In dietary supplement, the content of vitamin is variable [13]. They are generally recommended in high doses of several times for daily intake. It seems to be following “the more the better”. But this is a violation of the “PARACELSUS” basic rule of toxicology that every compound is toxic if the compound is given in high dose. Even if quantity of water ingested is high can be lethal. Provided further, little information is available about the metabolism of supplements and their biological effect [14].

Generally, people take supplements to improve their health. Health is generally influenced by diet. In our diet, some ingredients support good health while others may not. People generally take vitamins due to their positive image. Some people take supplements to improve their health or performance and some people take to compensate the deficiencies [15]. The chance of vitamins' deficiency is decreased with normal diet. However, in Pakistan malnutrition is the major problem of vitamins' deficiency. The bioavailability of vitamins and nutrients from supplements is not generally the same as from food. Mostly people use supplements because of confidence in regulations that allow their sale, or the resulting marketing that exaggerates expected benefits [16].

In order to ensure the rational use of vitamins and nutrients in self-medication, education regarding their proper use should be provided to the customers. Appropriate health education to the community is critical [17].

Reasons for taking dietary supplements:

Reported reason for taking supplements included:

- To feel better
- To improve overall energy levels
- To boost immune system
- Digestive issues
- Lower cholesterol
- Reduced cost of consultation
- To gain weight [10,18].

Methodology:

DESIGN, AREAS AND POPULATION:

The study was questionnaire based by using self-developed, pre-validated questionnaire which contains both open ended and closed ended items. The study population was pharmacy students from different areas of Punjab, PAKISTAN. All of these were young male and female b/w 20-25 years to go. All the willing students were enrolled in the study. 200 questionnaires were distributed to the students. Amongst participants, 100 were male and 100 were female pharmacy students. Respondent's percentage was female (100%) and male (68%). While 12 students returned the questionnaire unfilled and 20 students did not return the questionnaire. Overall response rate was 84%. Prevalence of the practice of self-medication was estimated in percentages. For the purpose of studying certain medical terms, they were explained to participants. Self-medication was defined and dietary supplements examples and their use were also described [19,20].

INCLUSION AND EXCLUSION CRITERIA

Data collected from Students of Pharmacy.

DATA COLLECTION TOOL

For the collection of data, a questionnaire was designed. The questionnaire was divided into 4 parts;

PART A: Sociographic data of patients

PART B: Questions about practice of Self Medication

PART C: Questions about knowledge of Dietary Supplements

PART D: Questions about attitude towards Self Medication of Dietary Supplements

Results:

PREVALENCE

Prevalence of self-medication was very high among pharmacy youth. Girls' percentage was generally more as compared to boys. Overall percentage was 60% female and 40% male.

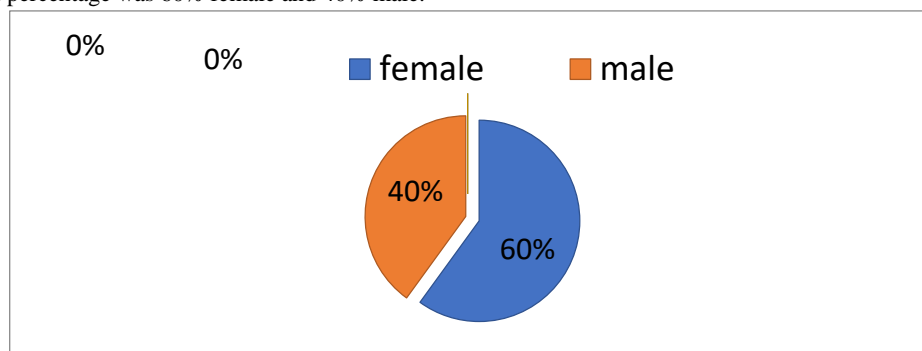


Figure 1.2: Gender base differences in prevalence Factors contributing to self-medication

The major factors that contributed to s/m were found to be safe to use (32.73%) and previous experience (26.78%). As shown in Table 1.1, it was very interesting to find out the reason of self-medication among pharmacy students.

Table 1.1: Factors contributing to self-medication

Factor	No of students	Percentage
Previous experience	21	26.78
Convenience	10	16.07
Safe to use	19	32.73
No cost of consultation	7	7.14
Non respondents	12	17.25

Frequency of the drug used for self-medication

Frequency to use also indicated the attitude of taking D/S, mostly it was taken once daily (51.19%) as shown in Table 1.2.

Table 1.2: Frequency of the drug

Frequency	No of students	Percentage
Once daily	86	51.19
Twice daily	12	7.14
Every few weeks	31	18.45
Occasional	20	11.90
Non respondents	19	22.47

Source of information about the drug

During this study, source of information was also analyzed that lead to decision of s/m and it was found to be from friends and family (20.23%) as a main source which is mentioned in Table 1.3.

Table 1.3: Sources of information

Source	No of students	Percentage
Physician	30	17.85
Pharmacist	33	19.6
Friends and family	34	20.23
Media	36	21.42
Internet	20	11.90
Non respondent	15	8.92

Reason of self-medication

Reason of s/m among pharmacy students was also analyzed and mostly students founded to use D.S for good health (39.88%), the other reasons for s/m are mentioned in Table 1.4.

Table 1.4: Reasons of self-medication

Reason	No of students	Percentage
For good health	67	39.88
Poor diet	19	11.30
To boost immunity	10	5.95
Energy	16	20.23
To gain weight	2	1.19
Dr prescription(previous)	34	9.52
Non respondent	20	12.5

Common type of dietary supplements used

The most common type of D/S used was also analyzed and multi vitamins were found to be used in the highest percentage (55.95%) while the percentages of other supplements used is shown in Table 1.5.

Table 1.5: Common type of dietary supplements used

Supplement	No of students	Percentage
Multi vitamin	86	55.95
Vitamin C	32	19.04
Vitamin B12	21	12.5
Vitamin B	17	10.11
Vitamin A	6	3.57
Non respondent	18	6.71

Some other questions about the use of drug were also asked from respondents such as either they have complete understanding of the problem for which they are using the supplements. And some other open and close ended question were asked about the product they used. These were some important observations that reflect the attitude of public towards s/m.

Knowledge

Knowledge of respondents was found to be poor about self-medication of dietary supplements and their contraindications. However, they have fairly good knowledge of advantages and disadvantages of self-medication. Some questions about the use of some common vitamins were asked from participants but they showed poor knowledge about their use. They also consider s/m safe but do not justify their concept.

Attitude

Attitude of pharmacy students towards Self-medication of dietary supplement was founded positive (67.85%) while (32.15%) show negative attitude. They were in favor of dietary supplements' self-medication because of their safety and no price for consultation. However, they consider that pharmacist should be knowledgeable about multi vitamin and counsel the patient at time of dispensing.

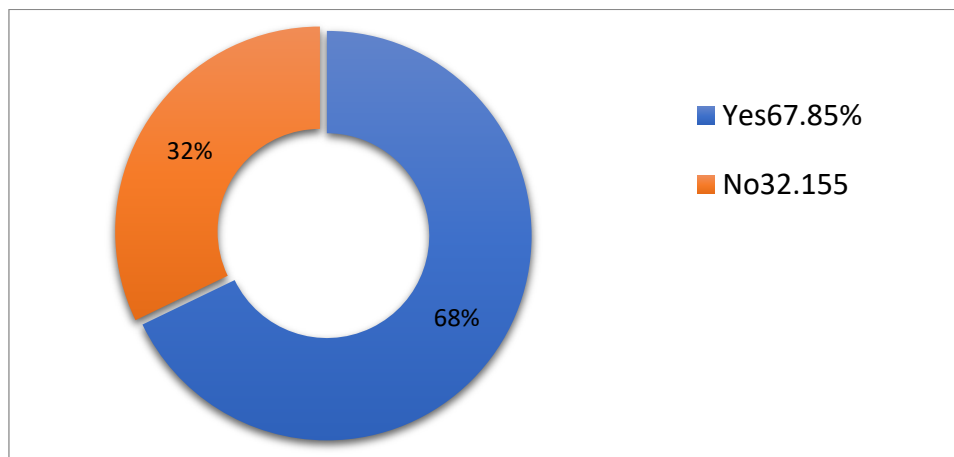


Figure 1.3 Attitude Percentages

Statistics Analysis of Study:

SOURCE OF INFORMATION

Mostly students get the information about dietary supplements from media and physician.

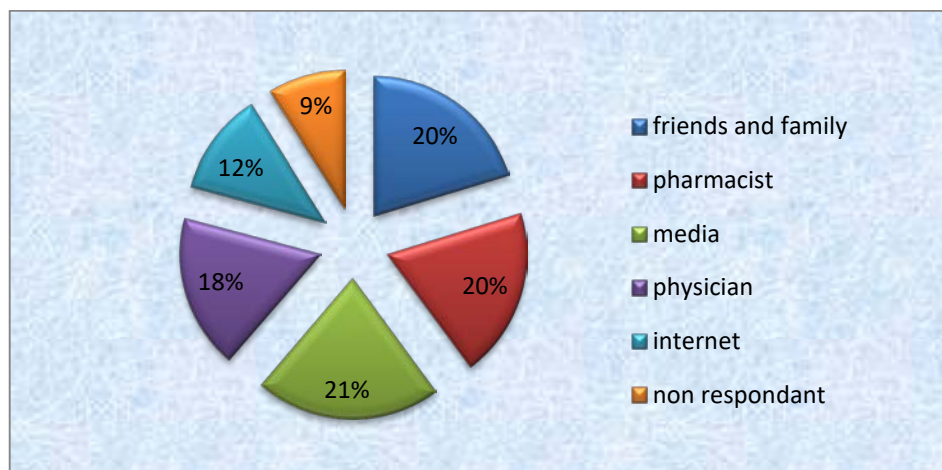


Figure 1.4 Source of information

FACTORS CONTRIBUTING TOWARDS SELF MEDICATION

Mostly students consider dietary supplements safe for health.

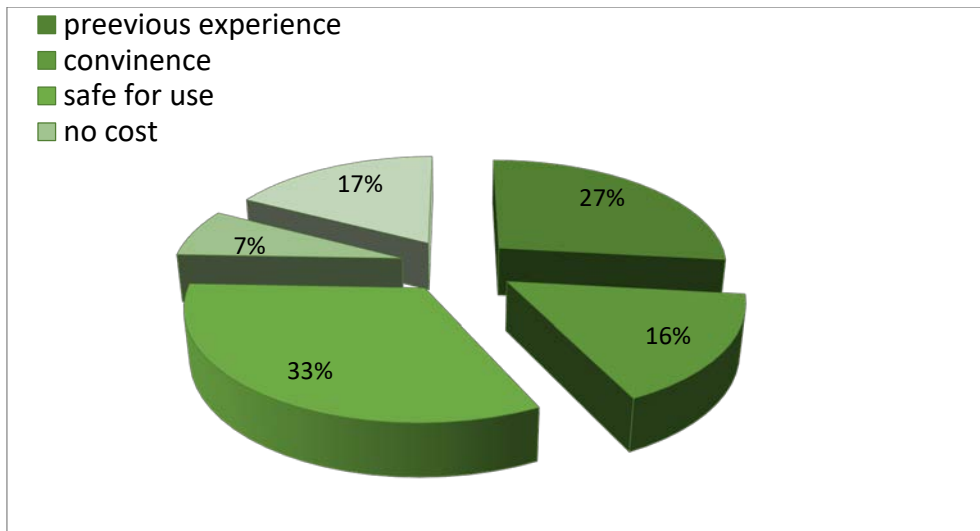


Figure 1.5 Contributing factors towards self-medication

REASONS OF SELF MEDICATION

Students believe dietary supplements are good for their health and they believe dietary supplements have no side effects.

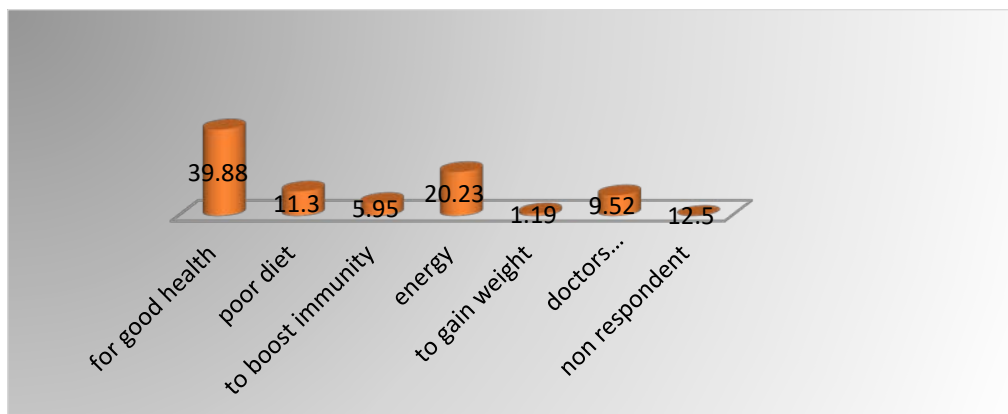


Figure 1.6 Reasons for self-medication

DRUGS THAT WERE MOSTLY USED

Mostly people take multivitamins.

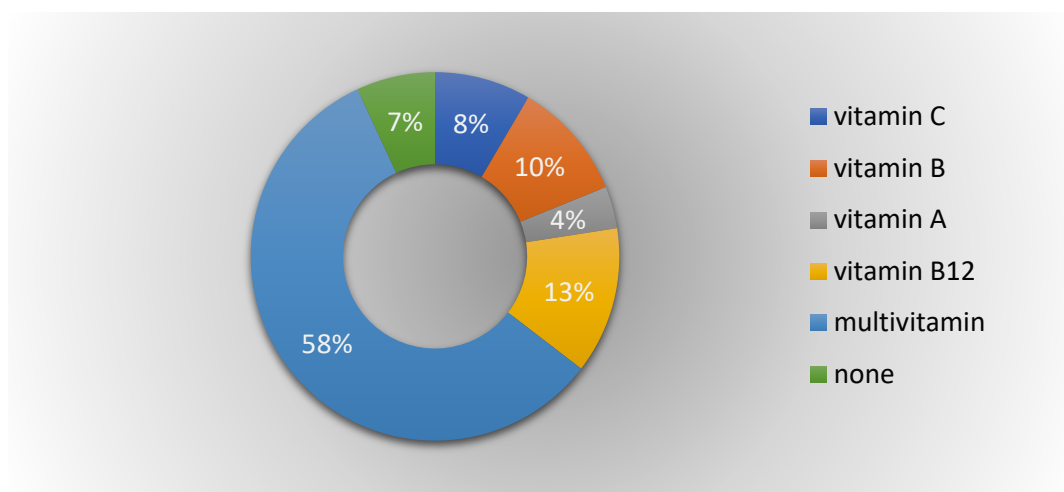


Figure 1.7 Mostly used drugs

FREQUENCY TO USE

Mostly people take once daily dose of dietary supplements.

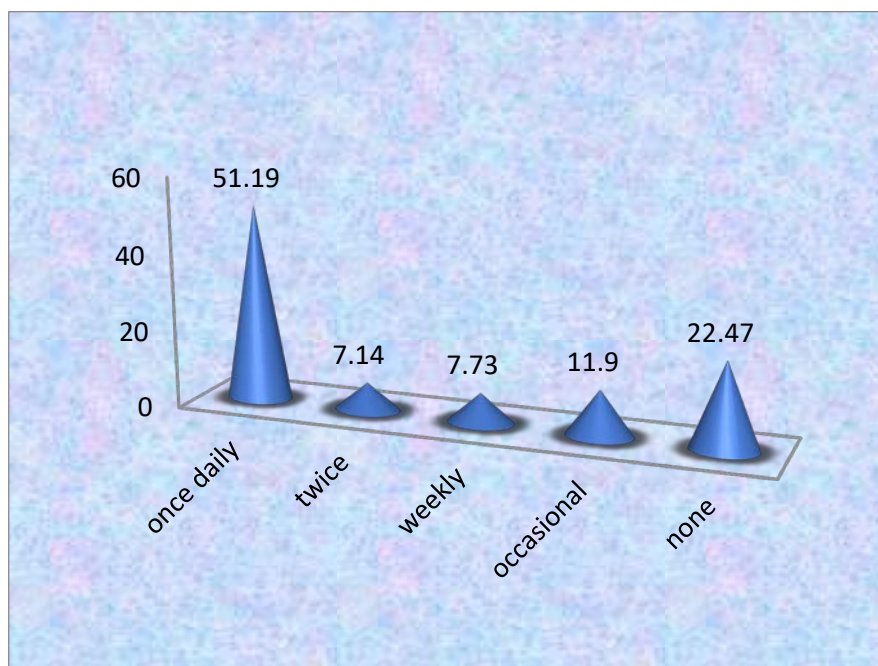


Figure 1.8 Frequency of use

Discussion:

The respondents were pharmacy students; so, their knowledge may also be a contributing factor to self-medication. This specific sample of pharmacy student actually represents the fraction of general population. Female self-medicate dietary supplements are more frequent as compared to male. So, gender-based differences exist and it is also approved from literature. Studies also suggest that gender based differences exist in communication and behavior of health seeking. Those with the previous experience and with concept of safety of multi vitamins self medicate more likely. So it has disadvantage because symptoms of many diseases are generally similar so chances of misdiagnosis. Furthermore, excess of everything is bad especially of drugs so if supplements are taken in excess amount without proper consultation, it could lead to serious consequences. The most common reason of self medication was found to be for good health and to gain energy. So there may be psychosocial issues that lead to self medication with dietary supplements. The most common source of information was friends and family. There are chances of side effects because body physiology of every person is different and may demand different doses for different duration with different frequency. Participants' knowledge about advantages and disadvantages was satisfactory. So many of them were afraid because of the adverse effects of self medication. And so some of them were discouraged from the self-medication. It indicates that awareness and health education should be provided to general public. The majority participants have positive attitude towards self medication and use of dietary supplements saying that they consider it safe. However, it is arguable that students that were enrolled in the study were pharmacy students; so, they have knowledge of drug and diseases as compared to general public. The important point here is that if their knowledge is inappropriate or wrong, it could lead to serious health consequences or risks. The trend of self medication increased presently due to influence of media and internet. However, the results of our study indicates that people self medicate dietary supplements due to information from friends and family and also because of the ease of their availability on pharmacies from pharmacists.

Conclusion:

From the study, it is revealed that the prevalence of self-medication with supplements and herbs is very high. Self-medication behavior is variable depending on the no. of different characteristics. Since dietary supplements sources were unapproved and mostly non-reliable, there is a need for health care professionals to enlighten consumers, through public education, on the problems that may arise from inappropriate medication use. There is an important risk interaction between prescribed drugs and the drugs taken for self-medication that factor of which healthcare providers must be aware of. Students also reported that the reason for their self-medication was the availability of medicine from pharmacies without prescription. These findings confirm the crucial role of pharmacies in the prevalence of self-medication. The current studies also show that students have poor knowledge so efforts should be taken to educate the students in order to minimize the danger of self-medication. And

lastly a proper drug control should also be implemented strictly. This would help to reduce the drug related mishaps and improve the health of individuals and society.

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