

## Self Medication Practices and Perception among Undergraduate Pharmacy Student: A Cross-Sectional Study

Darshan Sonawane, Rutika Waghchaure, Tejaswini Sonawane,

*Gaurav Sonawane, Kajal Pansare,*

*Divine college of pharmacy, Nashik, India423301*

Submitted: 16-09-2022

Accepted: 26-09-2022

**ABSTRACT:**Self-medication is becoming an increasingly important area within healthcare. It moves patient towards greater independence in making decisions about management of minor illness, thereby promoting empowerment.

Self-medication practice is widespread in many countries and the irrational use of drugs is a cause of concern. It assumes a special significance among medical students as they are exposed to knowledge about diseases and drugs.

The sale of over-the-counter (OTC) medicines from pharmacies can help individuals self-manage symptoms. However, some OTC medicines may be abused, with addiction and harms being increasingly recognized. This review describes the current knowledge and understanding of OTC medicine abuse. Irrational use of self-medication without medical guidance may result in greater probability of inappropriate, incorrect, missed diagnosis, delays in appropriate treatment, pathogen resistance and increased morbidity.

This study focused on self-medication used by the under graduate pharmacy student. It would be safe, if the people who are using it, have sufficient knowledge about its dose, time of intake, side effect on over dose, but due to lack of information it can cause serious effects such as antibiotic resistance, skin problem, hypersensitivity and allergy. There is need to augment awareness and improved knowledge and understanding about self-medication may result in rationale use.

**KEYWORDS:**Self-medication, OTC, Hazard of self-medication, risk of self-medication.

### I. INTRODUCTION:

Self-medication can be defined as the use of drugs to treat an illness or symptom when the user is not a medically qualified professional. The term is also used to include the use of drugs outside their license or off-label.

According to WHO, self-medication is the selection & use of medicines by persons to treat self-recognized illness or symptoms. This broadly

includes old prescription, referring prescription, consulting friends, and acquiring medication without prescription, consulting friends & relatives, neighbour's social group sharing medicines [1].

### II. HISTORY:

Concept of rational drug use is inherent to the issue of self-medication. Halophiles the Alexandrian physician in 300 BC had very well said that medicines are nothing in themselves, but are the very hands of God if employed reasons & prudence.

Self-medication has number of reasons ex – use for self-care feeling sympathy towards family members, no time to go to doctor and wait in long queue. There is an increased trend of self-medication particularly among educated people. This is due to improved socio-economic states, education, life style changes lack of time, easily available medicine, both husband and wife working, knowledge about illness and managing capacity, easily available information from media. Self-medication is 1st option for minor illness. It is common practice worldwide maybe it varies from country to country [2].

In the treatment minor illness problems are self-limited, so self-medication is used. One way it is useful for government, this can reduce cost of health care and allow health workers to concentrate on emergency disease, but at the same time side effects of self-medication can be emergency same time self-medication is very dangerous too.

Self-medication provides a lower cost alternative for people who cannot afford the cost of clinical service and medicine bill, if person uses self-medication for minor problems, it is well and good, but anything goes wrong ex- drug reaction, anaphylactic shock, toxicity then person will land up in to serious problems [3].

### III. WORLD SCENARIO:

Self-medication is practiced all over world. Today all countries rich poor, developing, developed, all are practicing self-medication. Now a

day's worldwide appreciation is seen towards self-medication and self-care. Countries like Australia, Argentina, Brazil, Canada, China, Colombia, Cost Rica, el Salvador, Germany, Guatemala, India, Italy, Spain, Sweden, Switzerland, UK, Venezuela & many other countries are practicing self-medication use of SM also depends upon healthcare system culture, education, economics, religion, awareness about medicine, influence of media & communication etc. But minor illness & symptoms, suffering of human being is same all over the world. Some study shows South Africa is using more self-medication compared to others. Percentage of OTC medicine satisfaction is in Mexico [4,5,6].

Self-medication has traditionally been defined as "the taking of drugs, herbs or home remedies on one's own initiative, or on the advice of another person, without consulting a doctor" [7].

Families, friends, neighbours, the pharmacist, previous prescribed drug, or suggestions from an advertisement in newspapers or popular magazines are common sources of self-medications. Now-a-days, self-medication should be seen as the "desire and ability of people/patients to play an intelligent, independent and informed role, not merely in terms of decision-making but also in the management of those preventive, diagnostic and therapeutic activities which concern them" [8,9,10]. In India, it is very common to see self-medication practice and which is emerging challenge to health care providers.

#### IV. WHY DO PEOPLE USE SELF-MEDICATION?

Modern consumers (patients) wish to take a greater role in the maintenance of their own health and are often competent to manage (uncomplicated) chronic and recurrent illnesses (not merely short-term symptoms) after proper medical diagnosis and with only occasional professional advice, e.g., use of histamine H<sub>2</sub>-receptor blocker, topical corticosteroid, antifungal and oral contraceptive. They are understandably unwilling to submit to the inconvenience of visiting a doctor for what they rightly feel they can manage for themselves, given adequate information [11].

Self-medication is very common and a number of reasons could be enumerated for it [12]. Urge of self-care, feeling of sympathy toward family members in sickness, lack of time, lack of health services, financial constraint, ignorance, misbeliefs, extensive advertisement and availability of drugs in other than drug shops are

responsible for growing trend of self-medication [13].

Self-medication (SM) is a global phenomenon. It is prevalent in every age group, though its extent differs among individuals and regions. Previously, it was considered as unnecessary, however, responsible self-medication is regarded as an important aspect of self-care nowadays. On the contrary, irresponsible or irrational SM is discouraged as it may not only harm the patient in the form of adverse drug reactions (ADRs) or medication-related problems (MRPs), but may also increase the direct costs, including the cost of treatment and hospital admission [14].

SM is defined as the use of medicines by a person for self-treatment based on self-diagnosed symptoms without consulting a physician and/or without a valid prescription. It may incorporate over the counter (OTC) medications that are dispensed without prescription, as well as prescription-only medications (POM) which require a valid prescription, such as antibiotics. Though self-medication with POM is not advisable, the latter is common in those countries which do not have strict regulations on the sale of pharmaceuticals [15,16]. Self-medication practice offers ease of access to OTC medications at a lower cost, which serves as an alternative to the costly and time-consuming clinical consultations. Safety issues are a major concern as many diseases have similar symptoms. Additionally, the risk of self-medication is increased if the individual does not have knowledge and understanding of the disease. Additionally, this practice is associated with an increased risk of misdiagnosis, ADRs, drug abuse and misuse [17].

One of the reasons to indulge in this practice is the financial condition of the patient. This is common in those countries where the individual has to pay direct cost for treating the condition. As a result, patients may prefer self-treatment over costly consultation. Another possible reason can be the non-regulated practices concerning sale of prescription drugs. This may result in the availability of POM without a valid prescription and, hence, patient may skip consultation and directly purchase prescription medications [18]. Evidence indicates that self-medication is practiced by teenagers, adults, parents, and students in Saudi Arabia. Familial practice may also render individuals to indulge in self-medication as it lowers their stigma towards self-medication. This highlights the need to educate parents about the problem as well. A pharmacist or a doctor at the community level can play an important role in this situation. This brings the discussion to the point of

evaluating Saudi pharmacy and medical student's outlooks toward this issue [19].

Pharmacy and medical students are expected to be more knowledgeable regarding rational use of medications as compared to general public. The curriculum of pharmacy and medicine teaches them about rational use of medicines and consequences of irrational use. Hence, this population is well aware of the phenomenon and issues related to this practice. Additionally, students of medicine would assume portfolio of a prescriber in future and may prescribe medicines. Similarly, pharmacy students would become future pharmacists and may find themselves counselling patients on safe use of medicines. Thus, both of these professionals play a significant role in patient care especially regarding this practice. Hence, understanding the practice and self-beliefs related to self-medication in this population is of paramount importance [20].

#### **V. SELF-MEDICATION: THE CURRENT SITUATION:**

Self-medication may be considered part of the larger self-care movement whereby individuals undertake activities with the intention of improving health, preventing disease, limiting illness and restoring health after injury or illness [21]. self-medication has been largely associated with the use of non-prescription drugs (sometimes referred to as over-the-counter medications) which can be purchased in pharmacies and in retail outlets. The place of sale is largely dictated by legislation; in the UK and many European countries, a significant range of non-prescription drugs are only available from pharmacies (pharmacy-only medicines) and a number of these require direct pharmacist supervision and/or intervention and advice before the sale is made [22]. A range of non-prescription drugs (described in the UK as general sales medicines) may also be purchased from retail outlets such as supermarkets, which have a restriction on the quantity and strength of medication which may be sold [23]. This is in contrast to the US where non-prescription drugs can be sold in a retail outlet irrespective of quantity or strength [24]. The monetary value of non-prescription drug purchases is increasing as illustrated in figure 1, with year-on-year increases in all categories of products. Overall sales figures in the UK (excluding Northern Ireland)

have also revealed an increase from £1275.8 million in 1996 to £1541.7 million in 1999 [25,26].

#### **VI. RATIONALE FOR DEREGULATION**

From a regulatory standpoint, there are a number of criteria which must be met before a medicine, that was previously available on prescription only, can be deregulated.

These criteria are:

- safety
- efficacy
- provision of information leading to safe use and, which includes warnings and advice on duration of use [27].

#### **VII. RISKS OF SELF-MEDICATION:**

Non-prescription products are generally considered for short-term use in the management of a self-limiting condition; it is not unreasonable that some products, such as paracetamol (acetaminophen), can also be used for the long-term treatment of certain chronic conditions such as self-management of osteoarthritis. However, in the latter case, this approach may be recommended once diagnosis has been made by a physician.

Clearly, this is not advisable with many non-prescription products which may not be potent enough or appropriate for long-term use. It has been generally recognized that the risks which result from self-medication are largely due to some form of inappropriate use. Sometimes this is described as misuse or abuse, terms which are often used interchangeably, but which have distinct meanings. The term misuse is applied to the use of a drug for medical purposes, but in an incorrect manner, for example, use over an extended period of time or at an increased dosage. Abuse, on the other hand, is used to describe the use of drugs for nonmedical purposes, for example, to experience their mind-altering effects or to achieve bodyweight loss. All drugs have the potential to be misused while abuse is largely associated with those products containing opioids, antihistamines and laxatives. It should be noted that it could be difficult to classify the inappropriate use of a product by an individual as being abuse or misuse. It is also possible that the initial misuse of a product by an individual for a genuine medical purpose, but at an increased dosage, may develop into abuse [28].

### VIII. RISK OF SELF MEDICATION



Non-prescription drug	Interacting drug	Possible Outcome
Aspirin (Acetylsalicylic acid)	Warfarin Methotrexate	Increased risk of bleeding Methotrexate Toxicity
Cimetidine	Warfarin Carbamazepine, phenytoin, valproic acid (Sodium valproate, Theophylline	Increase risk of bleeding Toxicity
Fluconazole	Sulphonylureas Pimozide Simvastatin	Hypoglycemia Ventricular arrhythmias Myopathy
Ibuprofen	Warfarin Lithium	Increase risk of bleeding Lithium toxicity
Phenylephrine, phenylpropanolamine, pseudoephedrine	Monoamine Oxidase Inhibitor	Hypertensive crisis

**Table: Example of potential interaction involving non-prescription medication**

### IX. PATIENT-PHYSICIAN PARTNERSHIP:

The promotion of patient empowerment and their involvement in their own healthcare has already been alluded to, but this fact should not be seen in isolation from those who provide healthcare. Partnership in healthcare has been advocated in the literature in relation to decision making and this includes medicine taking. However, there are major gaps in the knowledge on how patients, physicians and pharmacists view self-medication. It has been reported that patients do not always consider non-prescription medication to be drugs [29] and this may be compounded if such medications are bought from a retail outlet rather than a pharmacy. As mentioned earlier, research has shown that patients do not report non-prescription drug usage to doctors and equally, doctors do not ask about the use of such products. It has also been highlighted that GP knowledge of non-prescription drugs is quite poor, although the

profession is becoming more supportive of this area of healthcare. This could clearly lead to further iatrogenic disease, perhaps leading to the so-called 'prescribing cascade'. The patient may obtain a supply of non-prescription medication from a nonpharmacy source. An adverse effect triggered by inappropriate use of a non-prescription drug may not be recognized as such by a doctor. The patient does not inform the doctor of product consumption and the doctor does not ask. This could lead to the prescribing of a prescription-only medication which will be supplied by the pharmacist, who may not be aware that the patient is taking other medication. The prescription medication may interact with the non-prescription product or may not alleviate the adverse effects precipitated by the non-prescription product. The patient therefore returns to the doctor for further consultation [30].

**Conditions treated by self-medication:**

Headache, body ache, cough cold, constipation, loose motion, acidity, generalized weakness, sleeplessness (insomnia), fever. Skin infection, joint pain, burns, menstrual pain, insect bites etc.

**Advantages of self-medication:**

- It helps to prevent and treat symptoms and ailments that don't require a doctor.
- Patient gets immediate relief. This reduces the pressure of medical services where health care. Services are not available and insufficient.
- Increase the availability of health care in rural area or remote areas, hilly areas.
- Patient gets control over the chronic disease.
- Good for Patient wellness and productivity.
- Economic improvement for employer.
- Cost saving and time saving to health care of the people.

**Disadvantages of self-medication:**

- Once medicines are entering human body, get absorbed rapidly. At the same time medicine gets sold rapidly through a, powerful marketing and no or less control over medicine.
- They are used and miss used and over used for different type of illness.
  1. e.g., Taking pain killers for long time out consultation of doctor and out knowing the cause of headache.
  2. e.g., Paracetamol is antipyretic and analgesic which is used in large doses can cause liver problems (toxicity).
  3. e.g., Major problem or disadvantages of self-medication is emergence of human pathogen resistance microorganisms worldwide particularly in developing countries, where antibiotics are often used and available without prescription.

**Positive outcomes of self-medication:**

Self-medication also has advantages for healthcare systems as it facilitates better use of clinical skills, increases access to medication and may contribute to reducing prescribed drug costs associated with publicly funded health programs [31].

**Hazards of self-medication:****Individual level**

- Inaccurate self-diagnosis
- Failure to inquire about suitable medical advice promptly
- Inaccurate choice of therapy

- Fail to recognize unusual pharmacological risks
- Uncommon but severe adverse effects
- Fail to diagnosis of contraindications, interactions, warnings, and precautions
- Fail to distinguish that the same active substance is already being taken under a different name Fail to report recent self-medication to the prescribing physician (double medication/harmful interaction)
- Incorrect route of administration
- Excessive dosage
- Risk of dependence and abuse
- Excessively prolong use
- Food and drug interaction
- Storage in incorrect conditions or beyond the recommended shelf life
- Fail to recognize or report [32].

**Role of pharmacist intended for self-medication:**

The pharmacist is one of the key role players in educating the customers about the proper use of medicines, which are intended for self-medication such as OTC drugs. For that necessary step have to be taken in their training and practice programs. Pharmacists play an important role in identifying, solving, and preventing drug related problems for the purpose of achieving optimal patient health and quality of life. Ambulatory-based pharmacists have an opportunity and responsibility to foster the safe, appropriate, effective, and economical use of all medications, especially for those therapies which patients are self-selecting. Pharmacists should guide their customers to consult the physician before taking any medication as self [33].

**OTC:**

Over-the-counter (OTC) drugs are medicines sold directly to a consumer without a requirement for a prescription from a healthcare professional, as opposed to prescription drugs, which may be supplied only to consumers possessing a valid prescription. In many countries, OTC drugs are selected by a regulatory agency to ensure that they contain ingredients that are safe and effective when used without a physician's care.

The term over-the-counter (OTC) refers to a medication that can be purchased without a medical prescription. In contrast, prescription drugs require a prescription from a doctor or other health care professional and should only be used by the prescribed individual [34].

**OTC Drug addiction:**

Recreational OTC drug use can also change the brain’s chemistry over time. Eventually the user builds a tolerance to the drugs, needing more of the substance to get the previous effects. Those addicted to OTC drugs maybe also develop withdrawal symptoms when they stop using [35].

**Common symptoms of OTC drug withdrawal include**

- Confusion
- Irritability
- Agitation
- Anxiety
- Mood change

**X. MATERIALS AND METHODS:**

It is a cross-sectional study in which study population consisted of undergraduate pharmacy students. This study will be conducted in a period of February 2022 to May 2022. The students who took self-medication during two years will be included in this study. A questionnaire in google form that include both open and close ended questions about self-medication practice will be given to undergraduate pharmacy students.

**XI. RESULT AND DISCUSSION:**



**Which area do you belong?**

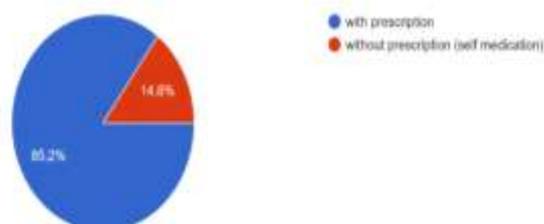
Most of student about 68% students comes from the urban area.



**Where you got source of information about OTC drugs?**

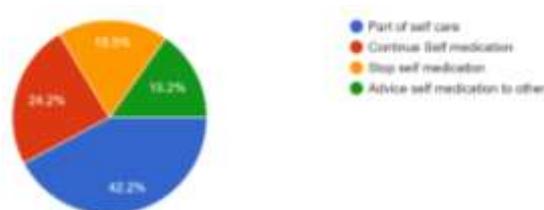
The maximum number of students got information about otc drugs from pharmacist.

Some students got information from old prescription and academics and rare students got information from advertisements.



**How you prefer medicine?**

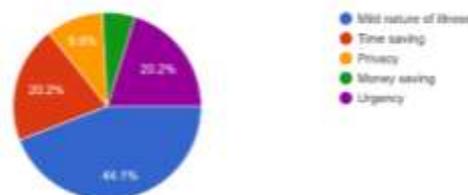
In whole 100% population 14.8% student preferred over the counter drug (without prescription) While 85.2% students preferred drug with prescription.



**Attitude towards self-medication?**

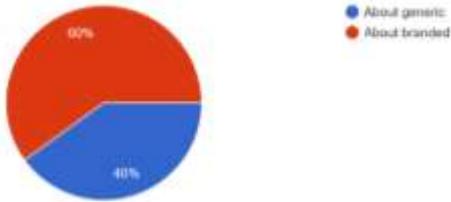
In whole 100% population, 42.2% student that are positive attitude towards self-medication for part of self-care, while 24.2% student continue self-medication.

18.5% student stop self-medication, while 15.2% student advise self-medication to other.



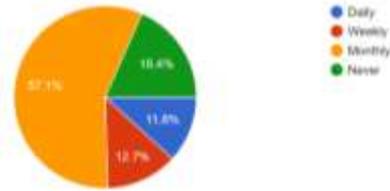
**What is the reason for self-medication?**

Most of the students preferred self-medication due to mild nature of illness and hardly some students due to time saving, privacy, money saving, urgency.



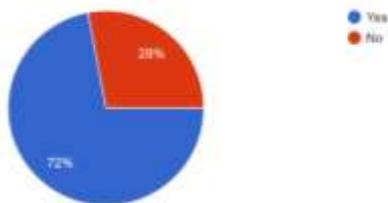
**Which type of self-medication do you prefer?**

In whole 100% population the student, 60% of student generally preferred branded medication, while 40% student preferred generic medication.



**How much time you prefer medication?**

In the whole population 100%, 57.1% people preferred monthly otc medication, while 12.7% people preferred weekly otc medication. 11.8% people preferred daily otc medication, while 18.4% people never preferred otc medication



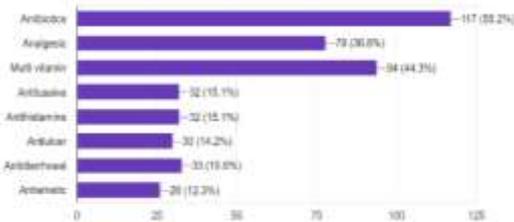
**Do you know the category of OTC drugs?**

In whole 100% population, 72% student knows the category of otc drug, while 28% student knows the category of OTC drug.



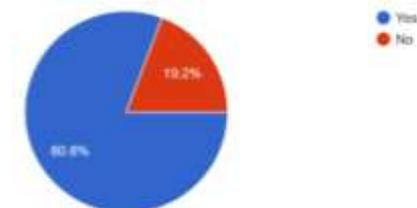
**How much prolong you take OTC drug?**

This pie chart illustrates how much prolong you take otc drug, in whole 100% population the 51.4% student take otc drug continuing lengthen for 2 days, while 26.7% student take otc drug extended for 3 days. 21.9% student take otc drug for long duration up to you get benefit.



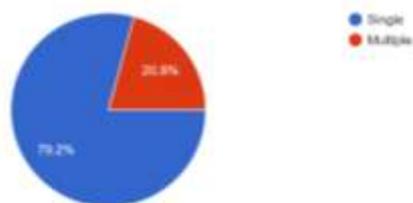
**Which class of drug you prefer for self-medication?**

Many classes of drug preferred but most commonly preferred categories of drugs by students which are Antibiotics, Analgesic, Multivitamins. Infrequently some categories are, Antitussive, Antiulcer, antihistamine, antidiarrheal, antiemetic.



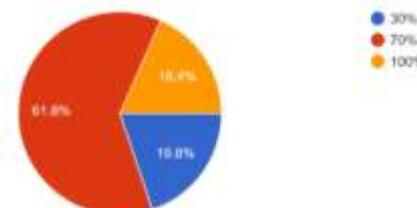
**Do you know, increasing drug dose can be dangerous?**

Increases in drug dose can dangerous to our body, in whole 100% population 80.8% student knows it and 19.2% student don't.



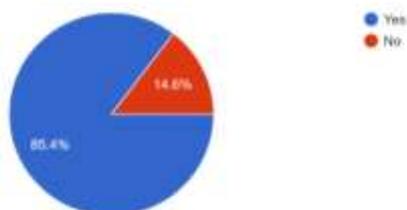
**At a time how much OTC drug you prefer?**

In whole 100% population, 79.2% student preferred at a time single drug, while 20.85 student preferred multiple drugs at a time.



**How much caution you are about drug?**

In whole 100% population, 30% student know 19.8% caution about drug, while 70% student know 61.8% caution about otc drug and 100% student know 18.4% caution about otc drug.



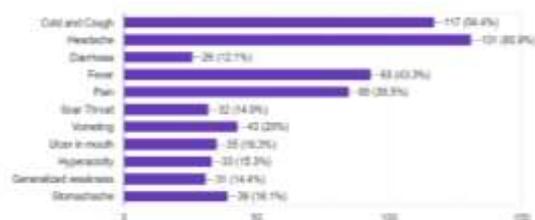
**Do you think about yourself when taking OTC drugs?**

In whole 100% population, 85.4% student think about self when taking otc medication, while 14.6% student do not think about self when taking otc medication.



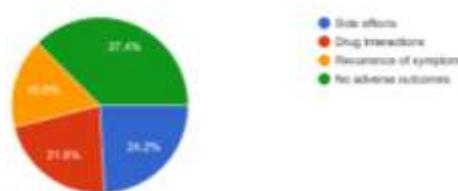
**How much percent effect of OTC drug you get?**

In whole 100% of population 30% student get 21.4% effect of otc medication. While 70% student get 67.9% effect of otc medication and 100% student get 10.7% effect of otc drug.



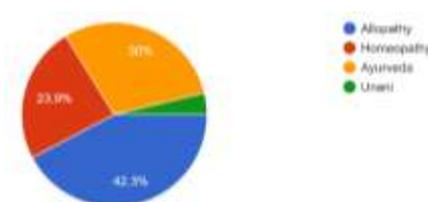
**Which symptom you have observed about self-medication?**

After taking self-medication some symptoms are observed in which most common, headache, cold and cough, fever, and body pain. Some symptoms are slightly observed like, diarrhoea, sore throat, vomiting, ulcer in mouth, hyperacidity, weakness and stomach-ache.



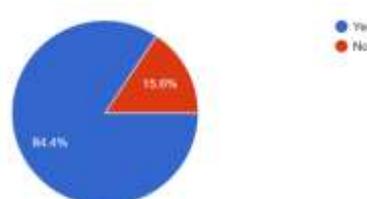
**Which adverse outcome do you observe due to OTC medication?**

After taking over the counter drug observed some adverse outcomes, this graph shows that the result of survey in which 24.2% student suffer in side effects, while 21.8% drug interaction. But 37.4% student shows no adverse outcomes after taking otc medication, while hardly noticed that recurrence of symptoms.



**Which system follow prefer for self-medication?**

In whole 100% population the student preferred in four medication systems. Which is allopathy had 42.3% then ayurveda had 30%, homeopathy had 23.9% and the unani medication were preferred by 3.8% students.



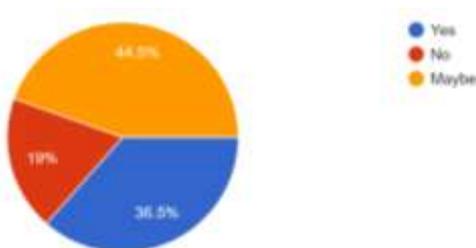
**Have you observed increase or decrease in symptoms after otc drugs?**

In whole 100% population, student shows that increase or decrease symptoms after taking otc medication, 84.4% student observe symptoms increases or decreases, while 15.6% student do not show it.



**Do you read label carefully before buying OTC medicine?**

This pie chart illustrates in whole 100% population, 94.9% student which are read label carefully before buying otc medicines, while 5.1% student do not read label carefully before buying otc medications.



**Do you know OTC drug can cause misdiagnosis?**

Over the counter drug which can cause misdiagnosis sometimes, in 100% population, 44.5% student may be known OTC drug can cause misdiagnosis, 36.5% student know otc drug can cause misdiagnosis, while 19% student not knowing cause misdiagnosis.

**XII. CONCLUSION:**

From this research we can conclude that most of student preferred prescription drugs. Among these most of the student were give preference to antibiotics & analgesic drugs. And pharmacy students are more aware about self-medication.

**REFERENCES:**

[1]. Anonymous. Over-the-counter simvastatin given the go-ahead. *Pharm J*. 2004; 272:595.

[2]. Aronson, J K. "Over-the-counter medicines." *British journal of clinical pharmacology* vol. 58,3 (2004): 231-4. doi:10.1111/j..2004.02191.x

[3]. Bhattacharya S. Heart wonder drug goes over-the-counter. *New Scientist*. 2004; 16:35

[4]. Anonymous. OTC statins: a bad decision for public health. *Lancet*. 2004; 363:1659.

[5]. Self-care in the Context of Primary Health Care Report of the Regional Consultation Bangkok, Thailand, 7–9 January 2009

[6]. The World Self-Medication Industry W.S.M.IC.I.B. – Immeuble A – “Keynes”13, Chemin du Levant 01210 Ferney-Voltaire – France WSMI is a non-governmental organization in official relations with the World Health Organization

[7]. WHO guidelines: The role of pharmacist in self-care and self-medication; 2015.

[8]. Hernandez-Juyol M, Job-Quesada JR. Dentistry and self-medication: A current challenge. *Med Oral*. 2002; 7:344–7.

[9]. Hernandez-Juyol M, Job-Quesada JR. Dentistry and self-medication: A current challenge. *Med Oral*. 2002; 7:344–7.

[10]. Laporte JR, Castel JM. The physician and self-medication. *Med Clin (Barc)* 1992; 99:414–6

[11]. Bennadi, Darshana. “Self-medication: A current challenge.” *Journal of basic and clinical pharmacy* vol. 5,1 (2013): 19-23. doi:10.4103/0976-0105.128253

[12]. Laporte JR. Self-medication: Does information to users increase at the same rate as consumption. *Med Clin (Barc)* 1997; 109:795–6

[13]. Rainer, F et al. “Art und Ausmass der Selbstmedikation mitsogenannten "Hausmitteln" bei Patienten mit rheumatischen Erkrankungen” [Nature and extent of self medication with so-called "home remedies" in patients with rheumatic diseases]. *Zeitschrift fur Rheumatologie* vol. 41,6 (1982): 276-9.

[14]. Aljadhey H., Assiri G., Mahmoud M., Al-Aqeel S., Murray M. Self-medication in Central Saudi Arabia. Community pharmacy consumers’ perspectives. *Saudi Med. J*. 2015; 36:328–334.

[15]. Phalke VD, Phalke DB, Durgawale PM. Self-medication practices in rural Maharashtra. *Indian J Community Med*. 2006; 31:34–5

[16]. Garofalo L., Giuseppe G.D., Angelillo I.F. Self-Medication Practices among Parents in Italy. *BioMed. Res. Int*. 2015;2015 doi: 10.1155/2015/580650

[17]. Sarahroodi S., Arzi A., Sawalha A.F., Ashtarinezhad A. Antibiotics self-medication among southern Iranian

- university students. *Int. J. Pharmacol.* 2010; 6:48–52
- [18]. Abbas A., Ahmed F.R., Rizvi M., Khan M.H., Kachela B. Evaluation of drug dispensing practices by pharmaceutical drug retailers in Pakistan. *World J. Pharm. Res.* 2015; 4:189–197
- [19]. Gellman M.D., Turner J.R. *Encyclopedia of Behavioral Medicine*. Springer; New York, NY, USA: 2013. "Self-medication"
- [20]. Bawazir S.A. Prescribing pattern at community pharmacies in Saudi Arabia. *Int. Pharm. J.* 1992; 6:5.
- [21]. Stearns SC, Bernard SL, Fasick SB, et al. The economic implications of self-care: the effect of lifestyle, functional adaptations and medical self-care among a national sample of Medicare beneficiaries. *Am J Public Health* 2000; 90: 1608-12
- [22]. Kasim, Khaled, and Haytham Hassan. "Self-medication problem in Egypt: a review of current and future perspective." *Int J Cur Res Rev* 10.4 (2018): 40-5.
- [23]. Rather, Irfan A., et al. "Self-medication and antibiotic resistance: Crisis, current challenges, and prevention." *Saudi journal of biological sciences* 24.4 (2017): 808-812.
- [24]. Brata, Cecilia, et al. "Factors influencing the current practice of self-medication consultations in Eastern Indonesian community pharmacies: a qualitative study." *BMC health services research* 16.1 (2016): 1-10.
- [25]. Satoh, Michihiro, et al. "A survey of self-medication practices and related factors in the general population: the Ohasama Study." *YakugakuZasshi: Journal of the Pharmaceutical Society of Japan* 134.12 (2014): 1347-1355.
- [26]. Jain, Pankaj, et al. "Statistical study on self medication pattern in Haryana, India." *Indo Global J Pharm Sci* 2.1 (2012): 21-35.
- [27]. Selvaraj, Kalaiselvi et al. "Prevalence of self-medication practices and its associated factors in Urban Puducherry, India." *Perspectives in clinical research* vol. 5,1 (2014): 32-6. doi:10.4103/2229-3485.124569
- [28]. Blenkinsopp A, Bradley C. Patients, society, and the increase in self-medication. *BMJ* 1996; 312: 629-32
- [29]. Leppée, M et al. "3Ps--Pharmacist, Physician and Patient: Proposal for Joint Cooperation to Increase Adherence to Medication." *The West Indian medical journal* vol. 63,7 (2014): 744-51. doi:10.7727/wimj.2013.222
- [30]. Wong, F.Y., Chan, F.W., You, J.H. et al. Patient self-management and pharmacist-led patient self-management in Hong Kong: A focus group study from different healthcare professionals' perspectives. *BMC Health Serv Res* 11, 121 (2011).
- [31]. Hughes, C M et al. "Benefits and risks of self medication." *Drug safety* vol. 24,14 (2001): 1027-37. doi:10.2165/00002018-200124140-00002
- [32]. Ruiz, Maria Esperanza. "Risks of self-medication practices." *Current drug safety* vol. 5,4 (2010): 315-23. doi:10.2174/157488610792245966
- [33]. Rutter, Paul. "Role of community pharmacists in patients' self-care and self-medication." *Integrated pharmacy research & practice* vol. 4 57-65. 24 Jun. 2015, doi:10.2147/IPRP.S70403
- [34]. Marathe, P A et al. "Over-the-counter medicines: Global perspective and Indian scenario." *Journal of postgraduate medicine* vol. 66,1 (2020): 28-34. doi:10.4103/jpgm.JPGM\_381\_19
- [35]. Cooper, Richard J. "Over-the-counter medicine abuse - a review of the literature." *Journal of substance use* vol. 18,2 (2013): 82-107. doi:10.3109/14659891.2011.615002