

# **Impact of Knowledge and Attitude on Practices of Over the Counter Medications**

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## **Abstract**

Over the counter (OTC) medicines are the drugs that can be sold without the prescription of a registered medical practitioner to the consumer. In India over the counter medicines includes analgesics, nutrients, cough & cold and Ayurveda preparations. Unregulated or unrestricted availability of OTC drugs in the market increases the risk of drug resistance adverse drug reaction and drug interactions (Ranjith et al., 2012). OTC medicines are used as self-medication by students for conditions like fever, pain and cold. Awareness regarding OTC drugs will help to lead better medical practices and will prevent any untoward medical occurrence. This paper assesses the knowledge, attitude, practices regarding over the counter medications among undergraduate Nursing, Dental students and Pharmacist. Pre-validated questionnaire was used after obtaining informed consent. Ethics committee approval was taken from the institution before conducting the study. Analysis was done using SPSS Version 20.0. Analgesics and anti-allergic drugs were the most commonly used OTC drugs for cough, common cold and fever by the students. Most of the students were aware about over the counter medicines but their regulatory knowledge was poor. The present studies indicate that over the counter drugs are widely practiced, therefore it is necessary to create awareness and educate students regarding advantages and disadvantages of self-medication. Hence our study appreciates the need of conducting multi-centric studies with the objective of evaluating the knowledge, attitude and practices of self-medication involving wider section of medical professions.

## **Keywords**

Knowledge, attitude, practices, over the counter medicines, adverse drug reaction, self- medication

## **1. INTRODUCTION**

Over the Counter (OTC) medicines are drugs that can be sold without the prescription of a registered medical practitioner (OPPI, 2011). The phrase “OTC” has no legal recognition in India; all the drugs not included in the list of “prescription-only drugs” are considered to be non-prescription drugs (or OTC drugs). Hence “OTC Drugs means drugs legally allowed to be sold “Over the Counter” by pharmacists, i.e. without the prescription of a Registered Medical Practitioner. Prescription-only drugs are those medicines that are listed in *Schedules H and X* of the Drug and Cosmetics Rules. Drugs listed in *Schedule G* (mostly antihistamines) do not need prescription to purchase but require the following mandatory text on the label: “Caution: It is dangerous to take this preparation except under

medical supervision” (Bond & Hannaford, 2003). With the reclassification of certain drugs, the public can buy preparations that were previously available only on prescription (OPPI, 2011). More than 100,000 over-the-counter (OTC) products are now sold in drugstores, convenience stores, and supermarkets (Verma, Mohan, & Pandey, 2010). ‘Over-the-counter’ medicines are much more widely available than ever before, whether or not Governments sanction them. Just type “buy simvastatin” into Google and goggle at the gaggle of online pharmacies willing to sell you the tablets (L. Hughes, Whittlesea, & Luscombe, 2002). In U.S. more than 3 lakhs over the counter products are currently available in the market (FDA). The medicines once available without prescriptions are now restricted as per 21 CFR Part 330. OTC drugs are generally recognized as safe and effective and not misbranded and those which were restricted are also available as OTC drugs in the market now (FDA).

## **2. LITERATURE REVIEW AND RESEARCH GAP**

Over the counter (OTC) drugs, may generate substantial net benefit flows to economies through saving in travel and consultation time and the direct financial cost of treatment (AESGP, 2004). Some conditions are necessary for these benefits to be realized. These conditions aim at ensuring the safety of taking self-medicated drugs. They include the following: the drugs used are those indicated for conditions that are self-recognizable; the user should know how to take or use the drugs; the effects and possible side-effects of the drug as well as ways of monitoring these side effects are well communicated to the user; possible interaction with other drugs is known by the user; duration of the course of the drugs is known by the user and when the user must seek professional intervention (WHO, 1998). The consequences for incorrect diagnosis and dosage include growing resistance to some drugs and further deterioration in health capital.

In developing countries, professional health care is relatively expensive and in some cases not readily available making self-medication an obvious choice of healthcare service (F. Chang & P. K. Trivedi, 2003). Furthermore, it has been noted that many drugs that can only be purchased with prescription in developed countries are OTC in developing countries. Also, lax medical regulation has resulted in the proliferation of over the counter drugs that are in high demand for the treatment of highly prevalent diseases (Shakoor et al., 1997).

Unregulated or unrestricted availability of OTC drugs in the market increases the risk of drug resistance adverse drug reaction and drug interactions (L. Hughes et al., 2002) (Ranjith et al., 2012). Studies have reported that there is increased or potential risk for misuse or drug abuse of the products (G. F. Hughes, McElnay, Hughes, & McKenna, 1999). Patients generally had poor knowledge of the potential side-effects of their medication. However, this appeared not to affect their ability to identify adverse drug reactions (ADRs) (Khade, Bashir, Ravi, & Vadala, 2012). Misuse of OTC drug by consumer is through overuse, taking several drugs concurrently and using home remedies to treat potentially serious diseases (Levine, 2007). People often think that prescription and OTC drugs are safer than illicit drugs, but that’s only true when they are taken exactly as prescribed and for the purpose intended. When abused, prescription and OTC drugs can be addictive and put abusers at risk for other adverse health effects, including overdose—especially when taken along with other drugs or alcohol (Bradley & Blenkinsopp, 1996).

Regarding OTC medicines, there is generally less healthcare professional input into the recommendation or ongoing monitoring of use. There is an absence of records or linkage to other medication records and most countries allow direct-to-consumer advertising of the product. Taken together, these differences can result in inappropriate expectations, demand and use of the OTC medicines with limited opportunity for ongoing patient follow-up and monitoring of safety (Ranjith et al., 2012). Data from surveys and poison control center records demonstrate an increased nonmedical use of prescription and over-the-counter cough and cold preparations, particularly those containing Dextromethorphan. The nonmedical use of prescription medications may result in serious clinical effects with potential life-threatening complications, dependence and withdrawal syndromes. Dextromethorphan causes alterations in mental status that may contribute to judgment impairment leading to injury or fatality (Banerjee & Bhadury, 2012).

Use of OTC drugs as self-medication for conditions like fever, pain, cold are more common among undergraduate medical students (I. Banerjee & T. Bhadury, 2012) (Verma et al., 2010). Gender based prevalence among female students in use of self-medication as OTC was also reported (Khade et al., 2012). Better information for patients could improve their safety and better systems need to be devised for reporting adverse reactions. “Collaborative care” could bring financial benefits. Doctors, nurses, and pharmacists need to discuss how they will respond to self-medication practices, and ways of rewarding pharmacists for advising patients need to be found (FDA). Right from

preclinical level it is the responsibility of health care professional students to incorporate knowledge attitude and practices towards OTC. Awareness developed among them will help to lead better medical practices and prevents any untoward medical occurrence. Medical education should empower doctors, nurses and pharmacists to convert the knowledge imparted to them during their education to their practice of treating and curing patients. This study investigates if this is justified in the sample population studied and also helps in identifying if and what content of orientation program is needed if required to improve medical study methods. Hence this study is planned to compare, correlate and analyze the knowledge regarding over the counter medicine among medical practitioners.

### **3. OBJECTIVES OF STUDY**

#### **3.1 Primary objectives**

- ❖ To study the impact of knowledge and attitude on the usage of drugs among medical and dental students on their purchase practices of OTC medicines in India

#### **3.2 Secondary objectives**

- ❖ To determine the extent of Self Medication & attitude towards OTC drugs
- ❖ To find out the preference of Brands among OTC drugs
- ❖ To find out for what health ailments OTC drugs are purchased
- ❖ To identify the key influencers for purchase of OTC medicines among medical and dental students in India
- ❖ To analyse the role of pharmacists in purchase of OTC drugs

### **4. METHODOLOGY**

#### **4.1 Study Population:**

Students of Medical & Dental sciences and Pharmacist were included as study population.

#### **4.2 Sample Size**

A total number of 400 students and 65 Pharmacist were recruited as study population.

#### **4.3 Study Design**

This is a cross sectional study conducted among medical and dental students and some pharmacist. After obtaining informed consent, each student was provided with a questionnaire regarding over the counter drugs.

An anonymous questionnaire containing both open ended and close-ended questions (like demographic details, health conditions and over the counter medicine use, its frequency, precaution measures taken etc.) was provided to the students after obtaining informed consent. The filled questionnaire was subjected to statistical analysis using appropriate method.

Questionnaire was distributed to the participants and requested to fill it in the presence of any one of the investigators to avoid any missing responses, solving student's queries while completing the questionnaire. The filled Questionnaire was collected back and checked by the investigator for any missing responses. The questionnaires were returned back by all participants and later submitted for further data analysis.

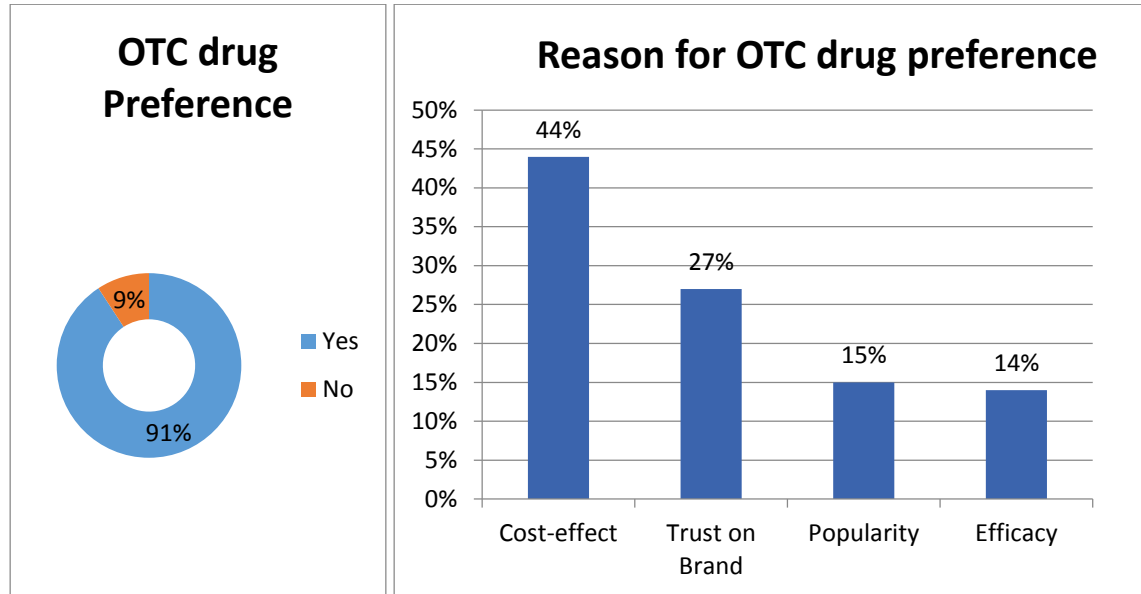
### **5. SCOPE OF THE STUDY**

The results obtained would create awareness about the irrational use of OTC drugs among medical and dental students community. Data will be useful for educating the students through orientation programs to lead better medical practices and prevent any untoward medical occurrences.

## 6. ANALYSIS AND INTERPRETATION

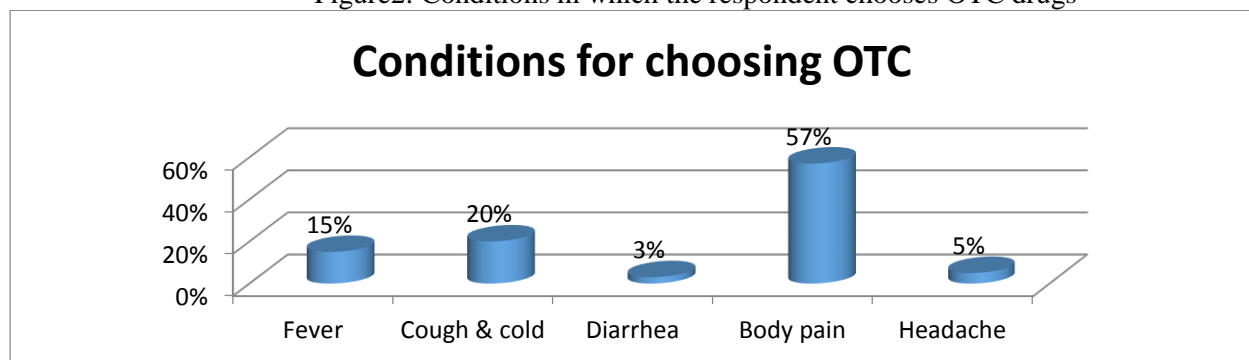
### 6.1 Respondent:

Figure 1: OTC drug preference of the Respondents and reason for OTC drug preference



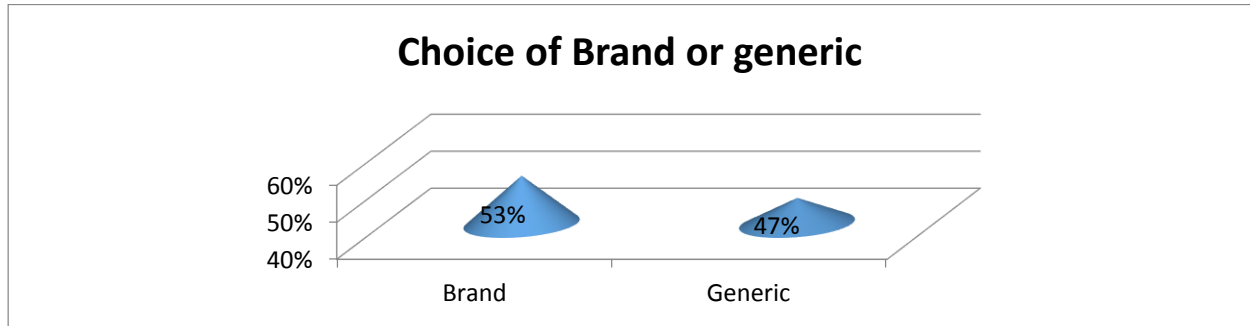
**INTERPRETATION:** From the above diagram it is inferred that 91% of the respondents prefer OTC drugs whereas only 9% of the respondents do not prefer OTC drugs. It is also inferred that the majority 44% of the respondents prefer OTC drugs because it's cost-effective, 27% prefer because of the trust on the brand, 15% prefer because of the popularity of OTC drugs and 14% of the respondents prefer OTC drug for its efficacy.

Figure2: Conditions in which the respondent chooses OTC drugs



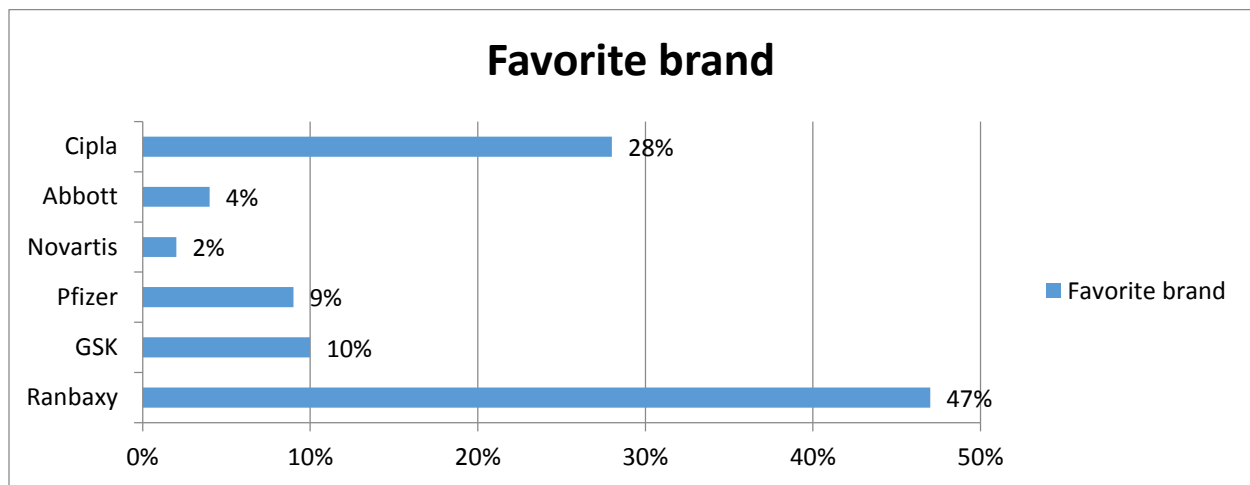
**INTERPRETATION:** Use of OTC drugs as self-medication for conditions like fever, pain, cold are more common among undergraduate medical students (Verma et al., 2010) (Banerjee & Bhadury, 2012). From the above diagram it is inferred that the maximum no (57%) of respondents choose OTC drugs for body pain whereas only 3% of the respondents choose OTC drug for diarrhea. The above data indicate that body pain seems to be the most frequent ailment followed by cough & cold and fever for which OTC drugs are taken. We can say that the OTC drugs prove very handy for simple ailments like body pain and common cold for which doctors are not consulted by the respondents.

Figure 3: Choice of brand or generic in OTC



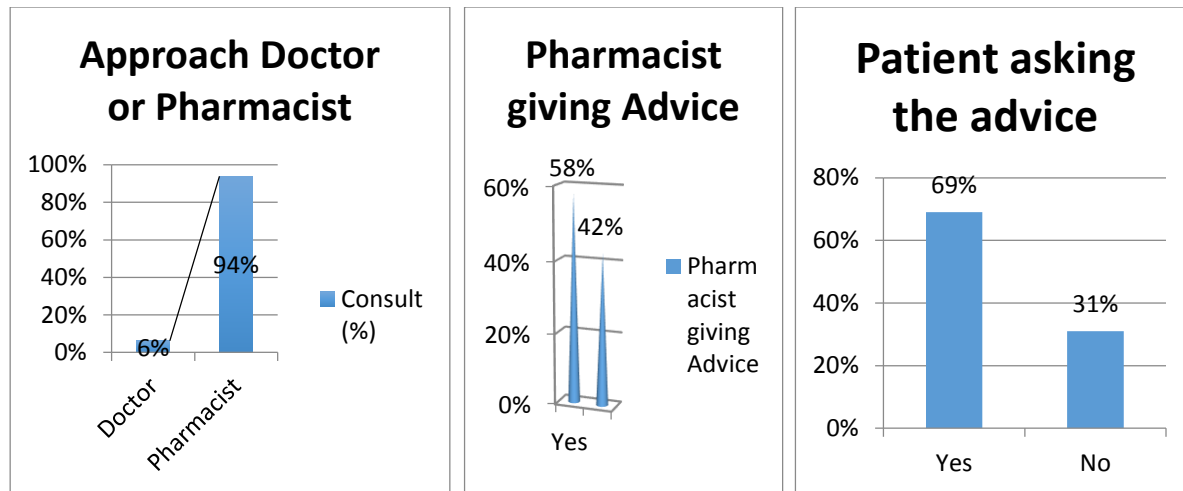
**INTERPRETATION:** From the above diagram it is inferred that 53% of the respondents are choosing a specific brand in OTC whereas 47% of the respondents are choosing generics in OTC which indicates that people are almost equally divided on the use of generics or specific brands.

Figure 4: Favorite brand of the respondent



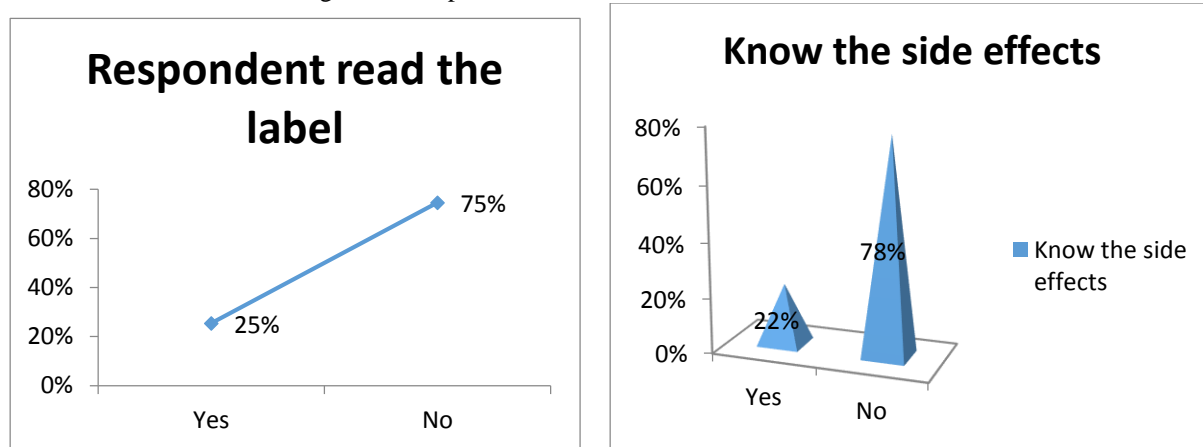
**INTERPRETATION:** From the above diagram it is inferred that majority i.e. 47% of the respondents says that Ranbaxy is their favorite brand while 3% of the respondents are says Novartis and Abbott. From the above data, it is clear that Ranbaxy and Cipla seem to be the dominant OTC drug brands. Both Ranbaxy and Cipla are India-based drug brands, which goes to show that when it comes to OTC drugs, generally drug brands manufactured in India are preferred over foreign drug brands.

Figure 5: Role of pharmacists



**INTERPRETATION:** Pharmacists who recommend OTC products to consumers should be aware of these issues and evaluate requests by consumers regarding OTC drugs accordingly. [9] From the above diagram it is inferred that 94% of the patients approach pharmacists directly. Only 58% of the pharmacists give advice regarding the use of the drugs while purchasing the OTC drugs and 42% of the pharmacists are not giving any advice. From the above diagram it is inferred that only 69% of the respondents are asking the advice if pharmacist forgets to tell and 39% of the respondents are not asking for advice if pharmacist forgets to tell. This indicates that to some extent pharmacists are confident about the awareness of the usage of OTC drugs among the patients even though many patients are not very confident about the usage of OTC drugs.

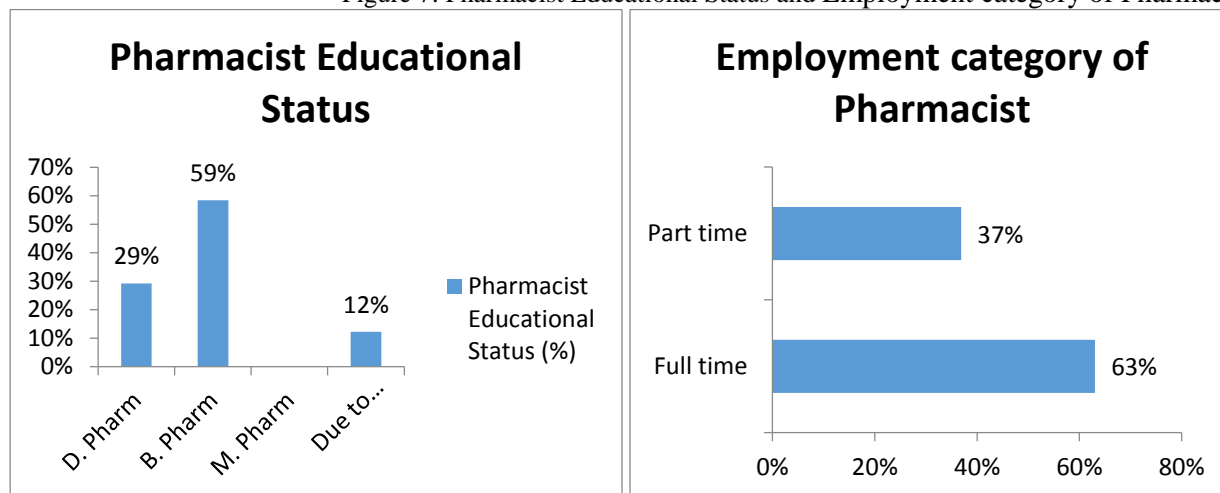
Figure 6: Respondent read the label and know the side effects



**INTERPRETATION:** Patient should be advised to read the label each time they purchase a product because more products are from the same brand family doesn't mean they are meant to treat the same conditions or contain the same ingredients (Esmay & Wertheimer, 1979). From the above diagram, it is inferred that only 25% of the respondents read the label content of the drug while majority i.e. 75% of the respondents do not read the label content of the drug. It is also inferred that majority of the respondents don't know the common side effects and contraindication about the OTC drugs and only 22% of the respondents know the side effects. All this indicates that respondents need to be more careful while selecting the OTC drugs.

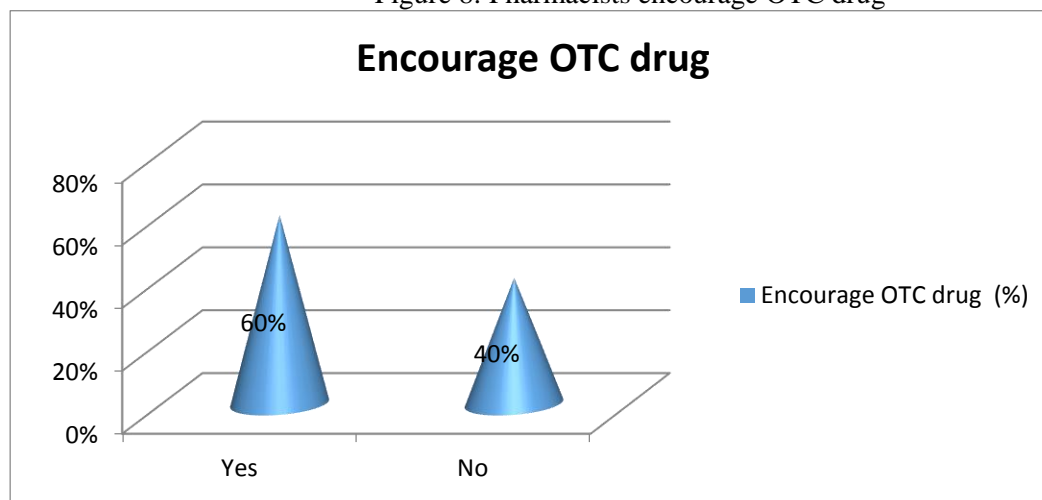
## 6.2 Pharmacist

Figure 7: Pharmacist Educational Status and Employment category of Pharmacist



**INTERPRETATION:** From the above diagram it is inferred that 59% of the pharmacists have finished a Bachelors Degree whereas 29% have finished a Diploma degree in pharmacy which implies that pharmacists are generally quite qualified. From the above diagram it is inferred that 63% of the pharmacist are working as full time pharmacist whereas 37% are part time. The data also implies that more than majority of pharmacists are full-time employees involved in this profession.

Figure 8: Pharmacists encourage OTC drug



**INTERPRETATION:** From the above diagram, it is inferred that 60% of the pharmacist are encouraging OTC drugs while 40% of the pharmacist are not encouraging the OTC drugs. The reasons for this could be that the patients could be not aware of the OTC drugs or they are also not aware of the side-effects and the usage of the OTC drugs.

### Hypotheses Developed:

**H<sub>0</sub>:** There is no significant relationship between the student education status and their use of drugs through OTC

**H<sub>1</sub>:** There is a significant relationship between the student education status and their use of drugs through OTC

### Chi Square:

Respondent education status	Respondent asking the advice		Total
	Yes	No	
I year	11.19	9.81	21
II year	15.99	14.01	30
III year	4.80	4.20	9
IV year	41.03	35.97	77
Interns	0	0	0
Total	73.01	63.99	137

Calculated value ( $\chi^2$ ) = 64.73

Level of significance = 5%

Degrees of freedom = (5-1) = 4

Tabulated value = 9.49

Calculated value > table value

Accept H<sub>1</sub>, Reject H<sub>0</sub>

### Inference:

There is a significant relationship between the student education & their asking the advice regarding the use of drugs through OTC.

## 7. DISCUSSIONS AND CONCLUSIONS

This type of study, using a self-administered questionnaire, is largely dependent upon information given by respondents. Although students were encouraged to complete the questionnaire independently, mutual influence between pupils could not be entirely ruled out. However, given the high level of response, the results should closely approximate the behavior of the adolescent students in India. Few students consulted pharmacists for information on drugs. In India, the pharmacist's role is mainly seen as that of a drug salesman rather than that of a healthcare provider. Patient education and awareness campaigns are necessary to promote the role of the pharmacist in India. Students with a previous experience and with mild illness were more likely to practice self-medication. This has implications, because many diseases have similar symptoms and a person using previous experience may be exposed to the dangers of misdiagnosis and consequently wrong treatment.

After the entire analysis of survey and questionnaire, we find that most of the respondents are choosing OTC drugs and most of the students don't have the knowledge about the side effects of OTC drugs. Most of the respondents choose OTC drugs as they are cost-effective. OTC drugs are mostly chosen for body pain and the patients don't know about the different brands in the market. Analgesics and anti-allergic drugs were the most commonly used OTC drugs for cough, common cold and fever by the students. Most of the students were aware about over the counter medicines but their regulatory knowledge was poor.

Students fail to ask the advice regarding the use of drugs if pharmacist forgets and in some cases the pharmacists don't advice regarding the use of drugs and its common side effects. The pharmacist and other health



care professionals should take the responsibility to educate the consumers about OTC drugs and its common side effects. They should advise the consumers regarding the use of drugs because pharmacists are the major contacting person in OTC drugs. The OTC drug culture in the market can be improved if the pharmacists and doctors take up these responsibilities. The present studies indicate that over the counter drugs are widely practiced, therefore it is necessary to create awareness and educate students regarding advantages and disadvantages of self-medication.

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## Biography

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