



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**
'A Bridge Between Laboratory and Reader'

www.ijbpas.com

**KNOWLEDGE, ATTITUDE, AND PRACTICE ON OVER-THE-COUNTER
DRUGS AND COSMECEUTICAL USAGE AMONG PHARMACY
STUDENTS: A FACILITY-BASED CROSS-SECTIONAL STUDY**

**REDDY BM*, SOHA FATIMA, AQSA FATIMA, KOLKAR ASMA AND PRAVEENA
DEVI CH.B.**

Joginpally B.R Pharmacy College, Hyderabad, Telangana

*Corresponding Author: Dr. B. Maheswari Reddy: E Mail: mahi.unaj@gmail.com

Received 24th Sept. 2023; Revised 25th Oct. 2023; Accepted 16th Jan. 2024; Available online 1st Oct. 2024

<https://doi.org/10.31032/IJBPAS/2024/13.10.8917>

ABSTRACT

Background: Self-medication with Over the Counter (OTC) medications is common among medicine and health science students. For safe use of OTC medications, students are expected to have proper knowledge, attitude, and practice (KAP) towards OTC medications and subsequent adverse drug reactions (ADRs). Improper use of OTC medications might result in health and other drug-related issues. On the other hand, abundant use of OTC cosmetics products among females is alarming due to possible health hazards ranging from allergy to fatal anaphylaxis and toxicity.

Objective: The main objective of this study is to evaluate the perceptions and extent of practicing self-medication among undergraduate pharmacy students.

Methods: A cross-sectional study was performed using a self-administered online questionnaire, which was developed, standardized, and previously used by Kumar *et al.* (November to December 2023) among undergraduate pharmacy students in the colleges located at Moinabad. The questionnaire consisted of 4 sections: demographic information, knowledge of OTC medicines, attitudes, and practice. Descriptive and inferential statistics were used for data analysis distributed among 210 participants through a validated data collection form. Self-medication was reported by 78.0% of students. The major cause for self-medication was minor illness (69.60%, $p = 0.43$) while previous prescriptions were the main source of knowledge as well as the major factor (62.80%, $p = 0.74$) dominating the self-medication practice. The results also demonstrated 78.80% of students had previous knowledge on self-medication and 73.40% of students always checked the information on the label; mainly the expiry date before use (75.60%). Furthermore, students demonstrated differences in their response level towards

the adverse effect of drugs, the health hazard by a higher dose of drug, a physician's help in case of side effects, taking medicine without proper knowledge, and stopping selling medicine without prescription.

Conclusions: Awareness of proper OTC medicine use among students in institutions of higher learning is necessary to prevent the rise of inappropriate user practices.

Key words: Self-medication, Adverse drug reactions, Health hazard, Prescription, Over the Counter

INTRODUCTION:

Despite all their benefits, improper use of medicines can bring potential health hazards and evidence continue to mount that adverse reactions to medicines are common, yet often preventable, cause of illness, and even death is evident. Self-medication (SM) can be defined as “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms without consultation of health care professionals. Recently, an increase has been observed in the use of pharmaceutical drugs by the general population [1]. However, this increase has not been associated with an improvement in health. According to the World Health Organization (WHO), more than 50% of the drugs consumed worldwide are prescribed or dispensed inappropriately and almost 50% of patients use these drugs incorrectly, resulting in increased morbidity and mortality [2, 3].

Several factors have influenced this increase, namely, increased age, higher access to medication and increased self-diagnosis and treatment, which means the management of own health through all available resources, individual and/or

collective [4]. This self-management of health encompasses the concept of self-medication, defined as the selection and use of drugs by individuals and/or caregivers to treat self-recognized or self-diagnosed conditions or symptoms. This self-medication can be an unsafe practice [5] due to inaccurate self-diagnosis or an inappropriate dosage intake that can result in side effects, adverse reactions, and pharmacological interactions [6]. Studies have shown that many factors (cultural, political, and environmental) influence the practice of self-medication for the prevention or treatment of symptoms and diseases. The most common medical ailments for which self-medication is practiced include headache, joint pain, fever, cold and cough, allergy, heartburn and diarrhoea [7]. A drug is usually given to a patient for the positive effects but may give rise to several adverse effects due to lack of knowledge, carelessness, misuse, overdose, cheap cost, memory problems. when serious problems occur in healthcare there is always a ‘knee-jerk’ response by many to impose a ban and thus provide an immediate and

definitive response to the issue while such responses may be emotionally satisfying, they often represent answers which are smarter than we are and may end up causing more harm than good. Lack of knowledge regarding banned drugs; use of inappropriate OTC products; analgesics: cosmetics have become more rigorous the need to educate or create awareness is becoming important. Lack of adequate knowledge about OTC medications may directly lead to bad outcomes, such as overuse or non-compliance to treatment programs [8].

On the other hand, Cosmeceutical OTC medications, which are intermediate products between prescription drugs and cosmetics, create a practical gap in directing public attention to their rational use and potential hazards. These hazards may range from stinging or burning sensation due to skin irritation to severe allergic contact dermatitis. In addition to affecting consumer health, cosmeceutical OTC drugs also have a significant financial burden on the economics of healthcare, represented by the high cost of treating their possible side effects [9]. It appears that the prevalence of cosmeceutical product usage has been enormously expanding at an unprecedented rate, [10] especially for topical cosmeceuticals [11]. However, there is lack of studies that report the exact percentages of cosmeceutical use in individuals with

different social, educational and national backgrounds. Increasingly, cost-effective non-invasive means of improving personal appearance of skin and hair are searched for, especially by females and less frequently by men and even children [12]. Currently, prescribed medications and medical procedures are being rejected and replaced by OTC medications as cosmeceuticals. Several types of systemic and topical cosmeceutical treatments are now available to manage conditions such as hyperpigmentation, wrinkles, acne, alopecia and hair damage.

To the best of our knowledge, there is no documented study assessing the use of OTC medicines. A survey targeting the younger population, especially those undergoing university or college education, will be helpful, because they are the primary users of social media and so are most likely to be exposed to unverified sources of health information. This study also targeted to provide further insight regarding the issue of misuse of OTC medicines to fill the information gap of public health policy makers.

METHODS:

A cross-sectional questionnaire-based study was performed to evaluate knowledge regarding using OTC medications and cosmeceuticals among pharmacy students. The questionnaire was designed according to data retrieved from a scientific literature

search of similar questionnaires performed on the use of OTC products and cosmeceuticals. In addition to demographic questions, the questionnaire included questions about the reasons for OTC administration, Purpose of Self-Medication Practice, Factors Influencing Self-Medication Practice, Sources of Information on Self-Medication Practice, Factors affecting students' choice of OTC cosmeceuticals, their source of knowledge, the frequency of usage, High alert OTC Drugs and Banned OTC drugs.

Study Design:

This population-based cross-sectional study was carried out to investigate the knowledge, attitudes and practice of self-medication among the undergraduate pharmacy students. The study was conducted by using both qualitative and quantitative data.

Study Participants: The study included 210 undergraduate students enrolled in a Bachelor of Pharmacy program who understood English, aged between 18–25 years with different socioeconomic backgrounds. Before data collection each and every participant was clearly informed about the purpose of the study and a written consent was taken from each of the respondents. The questionnaire, along with the participant information sheet and consent form, was distributed online by

sharing the link to the survey via social media.

Participants and Eligibility Criteria:

This study included only those respondents who were easily available for data collection and interested to provide information willingly. Out of 210 students who participated in the assay 10 were excluded from the study as they did not feel comfortable to give information.

Data Collection:

The procedure of data collection was segmented into three steps. The first step was to fill out the questionnaire including socio-demographic information by the study subjects. The second step was to discuss the study protocol, and the final step was to cross-check the questionnaires filled by the respondents. The questionnaire was adopted from a formerly published study which was developed, standardized, and previously used by Kumar *et al.* for undergraduate pharmacy students. The questionnaire was divided into four segments and consisted of 16 close-ended and 11 open-ended questions. Segment 1 contained questions related to socio-demographic information of the respondents. Segment 2 included questions about the practice of self-medication by the respondents. Segment 3 was concerned with the knowledge and awareness related questions of the respondents while Segment 4 was on Questions related to the perception of the

respondents regarding self-medication practice, factors affecting students' choice of OTC cosmeceuticals, their source of knowledge, the frequency of usage, and their source of purchase were also included in the segment. The questionnaire also contained additional questions to assess the level of the students' knowledge about OTC drug indications, adverse effects and necessary investigations needed before their use.

Statistical Analysis:

Data analyses were conducted using SPSS software version 20.0. The p values were calculated by the Chi-square test. The Microsoft excel program was used for data analysis and for chart, graph, and diagram preparation.

RESULT:

Demographic Characteristics: Table 1 shows that 55.50% of the students were male while female students comprised 44.50%. Among all the pharmacy students 21% was from the 1st year, 22.00% from the 2nd year, 26.50% from the 3rd year, and 30.5% from the 4th year. The lowest number of students was in the age group <18 years with a percentage of 17.50% while the highest number of students was in the 21–25 years age group with a percentage of 38.50%. Another 44.0% of students was in the age group 18–20 years. Among the respondents 64.5% of respondents was from an urban area and 35.5% was from a rural area.

Table 2 demonstrates that the use of self-medication practice for different complications differed insignificantly ($p > 0.05$) between male and female students. It can also be seen from the table that students used self-medication for headache (61.10%); cough, cold/flu (71.30%); diarrhoea (48.60%); pain (41.70%); stomach-ache (32.80%); vomiting (32.10%); rash/allergies (22.50%), and skin problems (17.50%) respectively. Here the percentage of using self-medication for fever was highest and the value was least for ear problems.

The purpose of self-practicing of medications by the students was categorized into seven broad categories. The majority of the students (69.50%) used self-medication because they thought that they did not need to see a doctor for a minor illness. Easy availability of medicines (42.10%) and emergency use (22.20%) were the secondary reasons for practicing self-medication. Meanwhile quick relief (40.80%), lack of time to consult doctor (28.60%), sufficient pharmacological knowledge (19.10%), and cost effectiveness (19.80%) were other reasons behind self-medication of drugs. The table shows some high values on the purpose of using self-medication, but none of the values was significant ($p > 0.05$).

Factors Influencing Self-Medication Practice

Table 3 represents a pharmacy student's opinion on the factors (predefined categories from the survey) which influence the practice of self-medication. A major portion of the students (52.80%) said that they had self-prescribed a drug based on the previous doctor's prescription for the same disease. Another 50.80% students had previous experience of practicing self-medication while the opinions of family members (45.20%) and of friends (15.20%) were also influential factors for self-medication practice by the students. Advertisement (6.00%) and recommendation by local people (5.60%) were the least influential factors for self-prescription of medications.

Sources of Information on Self-Medication Practice

From the **Figure 1** we get a clear picture that the majority of the students considered an old prescription for common illness (75% and 68% respectively) and academic

knowledge (52% and 65% respectively) as their primary sources of information on self-medicated drugs. It was an interesting finding that male students gathered information about medicines from friends (42% and 54%), internet (55%, 68%), and advertisement (40% and 55%) and this rate was higher in comparison to female students.

Prevalence of Self-Medication Using OTC Cosmeceuticals

Out of 210 participants, most (171; 81.4%) reported using OTC products as cosmeceuticals, while only 96 (18.6%) stated that they were nonusers. The prevalence of the use of OTC cosmeceuticals for the hair, skin, and nails and teeth is summarized in **Table 4, 5, 6** respectively. Of the participants using OTC cosmeceuticals, nearly half used medications for the treatment of dry skin, and one-third used medications for the treatment of alopecia.

Table 1: Demographic Characteristics of Respondents:

| Item | Subgroup | Number | Percentage (%) |
|-------------------|----------------------|--------|----------------|
| Sex | Male | 111 | 51.60 |
| | Female | 89 | 44.5 |
| Year of study | 1 st Year | 42 | 21 |
| | 2 nd Year | 44 | 22 |
| | 3 rd Year | 53 | 26.5 |
| | 4 th Year | 61 | 30.5 |
| Age Group | <18 years | 35 | 17.50 |
| | 18-20 | 77 | 38.5 |
| | 21-25 | 88 | 44 |
| Area of Residence | Urban | 129 | 64.5 |
| | Rural | 71 | 35.5 |

Table 2: Purpose of practicing self-medication of the respondent

| Items | Male | | Female | | Total (%) | p Value |
|--|------|------|--------|------|------------|---------|
| | n | % | n | % | | |
| Indications for Using Self-Medication | | | | | | |
| Headache | 85 | 42.5 | 79 | 39.5 | 161 (80.5) | 0.62 |
| Cough, Cold/Flu | 67 | 33.5 | 68 | 34 | 135(67.5) | 0.82 |
| Fever | 89 | 44.5 | 83 | 41.5 | 172(86) | 0.57 |
| Stomach ache | 45 | 22.5 | 68 | 34 | 83(41.5) | 0.72 |
| Diarrhea | 84 | 42.0 | 73 | 36.5 | 157(78.5) | 0.23 |
| Menstrual Symptoms | 0 | 0 | 22 | 11 | 22(11) | 0.12 |
| Rash/Allergies | 36 | 18.0 | 43 | 21.5 | 79(39.5) | 0.89 |
| Anxiety/Depression | 9 | 4.5 | 20 | 10 | 29(14.5) | 0.65 |
| Ear Problems | 5 | 2.5 | 9 | 4.5 | 14(7) | 0.76 |
| Vomiting | 47 | 22.3 | 53 | 26.5 | 100(50) | 0.31 |
| Eye infections | 9 | 4.5 | 12 | 6 | 21(11) | 0.23 |
| Skin problems | 37 | 18.5 | 24 | 12 | 61(30.5) | 0.93 |
| Tooth ache | 27 | 13.5 | 21 | 10.5 | 48(24) | 1.00 |
| Insomnia | 7 | 3.5 | 7 | 3.5 | 14(7) | 1.00 |
| Type of Self-Prescribed Medicine | | | | | | |
| Analgesics | 68 | 34 | 67 | 33.5 | 135 (67.5) | 0.72 |
| Antipyretics | 47 | 23.5 | 59 | 29.5 | 96(48) | 0.92 |
| Antidiarrheals | 41 | 20.5 | 57 | 28.5 | 98(49) | 0.47 |
| Antiemetics | 23 | 11.5 | 30 | 15 | 38(19) | 0.52 |
| Antibiotics | 47 | 23.5 | 21 | 10.5 | 68(34) | 0.32 |
| Antacids | 61 | 30.5 | 78 | 39 | 100(50) | 0.21 |
| Sedatives | 21 | 10.5 | 18 | 9 | 39(19.5) | 0.68 |
| Anti-allergic | 46 | 23 | 47 | 23.5 | 93(46.5) | 0.45 |
| Vitamins | 48 | 24 | 46 | 23 | 94(47) | 0.76 |
| Ophthalmic preparations | 3 | 1.5 | 7 | 3.5 | 9(4.5) | 1.21 |
| Cosmetic products | 29 | 14.5 | 54 | 27 | 83(41.5) | 0.22 |

Table 3: Influencing factors for the selection of medications for self-practice by the respondents

| Factors | Male | | Female | | Total (%) | p Value |
|--------------------------------|------|-------|--------|-------|------------|---------|
| | n | % | n | % | | |
| Opinion of family members | 73 | 27.5 | 65 | 32.5 | 98 (69.00) | 0.61 |
| Opinion of friends | 29 | 14.50 | 21 | 10.50 | 50 (25.00) | 0.62 |
| Recommendation by local people | 21 | 10.50 | 27 | 13.50 | 48 (24.00) | 0.52 |
| Previous doctor’s prescription | 51 | 25.50 | 78 | 39.60 | 129 (64.5) | 0.91 |
| Own experience | 77 | 38.50 | 58 | 29.0 | 135 (67.5) | 0.04 * |
| Advertisement | 23 | 11.50 | 21 | 10.50 | 44 (22.00) | 0.47 |

n indicates the number of respondents. p value was determined using Chi-square Test.* p <0.05 was considered significant when compared between male and female groups

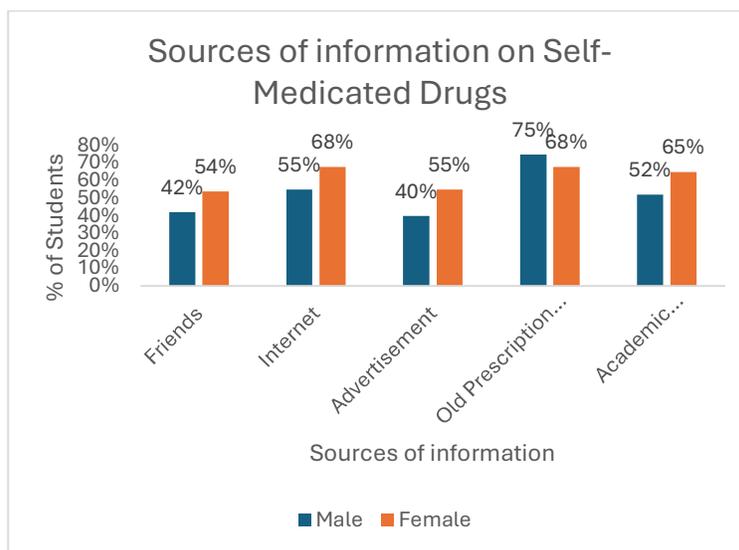


Figure 1: Sources of information on Self-Medicated Drugs

Table 4: Use of Different OTC Cosmeceuticals for the Hair Among the Sampled PNU Female Students

| Hair OTC Cosmeceuticals | Frequency* | (Percent) |
|--|------------|-----------|
| Oral OTC for hair strengthening | 48 | 24 |
| Topical OTC for treatment of alopecia | 39 | 19.5 |
| Topical OTC for treatment of thin hair | 30 | 15 |
| Topical OTC for strengthening hair | 67 | 33.5 |
| Topical OTC for straightening hair | 79 | 39.5 |
| Topical OTC for curling hair | 41 | 20.5 |
| Topical OTC for treatment of hair dandruff | 95 | 47.5 |
| Topical OTC for treatment of white hair | 7 | 3.5 |
| Topical OTC for treatment of hair lice | 37 | 18.5 |
| Topical OTC for eye lashes | 35 | 17.5 |

Table 5: Use of Different OTC Cosmeceuticals for the Skin Among the Sampled (Female) Students

| Skin OTC Cosmeceuticals | Frequency* | (Percent) |
|--|------------|-----------|
| Oral OTC for general skin health | 34 | 17 |
| Topical OTC for treatment of acne | 79 | 39.5 |
| Topical OTC for treatment of acne marks | 73 | 36.5 |
| Topical skin cleansing OTC | 78 | 39 |
| Topical OTC for treatment of dry skin | 60 | 30 |
| OTC for dry heels | 55 | 27.5 |
| Topical OTC for skin tanning | 49 | 24.5 |
| Topical OTC for skin whitening | 69 | 34.5 |
| Topical OTC for treatment of eczema | 51 | 25.5 |
| Topical OTC for treatment of stretch marks | 48 | 24 |
| Topical OTC for treatment of bad skin odor | 37 | 18.5 |

Table 6: Use of Different OTC Products for the Nails and Mouth as Well as Oral Multivitamin Medications Among the Sampled Students

| OTC Cosmeceuticals | Frequency* | (Percent) |
|--|------------|-----------|
| Topical OTC for fungal nail infections | 12 | 6% |
| Topical OTC for broken nails | 32 | 16 |
| OTC for cleansing the mouth | 56 | 28 |
| OTC for teeth whitening | 39 | 19.5 |
| OTC for treatment of bad mouth odor | 40 | 20 |
| Oral OTC multivitamins | 63 | 31.5 |

DISCUSSION:

People have always been very cautious about their personal health status and for this they have used self-medication, a feature of healthcare, from ancient times. Although self-medication has many pros and cons it depends on who uses it and how it is used for self-treatment. We focused on pharmacy students because they have adequate knowledge of medicine in theory and are more cautious about the safety of drugs which is lacking in other student groups or in the general population. Thus, a pharmacy student's view on the self-medication

practice can be considered as a major factor to judge the characteristics of their future prescription pattern.

In our study we found that about 88.0% of the student's self-practice different types of medication. Other similar studies also demonstrated the prevalence rate of self-medication ranged between 57.1% and 92% among the medicals students in India [13]. Similar to some previously published articles [14], headache, common cold, fever, pain, and vomiting were the most common symptoms for self-administration of medications mentioned by the respondents.

It was quoted in our research report that the most common cause for self-treatment with drugs was the insignificance of the illness which did not require a doctor's visit. Similar outcomes were reported by the study conducted in India [15]. This type of attitude of the respondents may be attributed to a disregard and absence of consciousness about the advancement of diseases. Sometimes the people who practice medication for self-treatment may suffer from a serious illness as the symptoms of many diseases are primarily mild but wrong diagnosis and treatment may promote serious health hazards. However, in agreement with other studies, easy availability of medicines, quick relief, and time saving were found to be the other causatives for preferring self-medication practice.

Our study found that the key factor for self-medication practice by the participants was their adequate pharmacological knowledge which they had gathered from their academic courses. However, at the same time inappropriate or irrational use of these drugs can lead to various hazardous effects including the reduction in the capability of microbial flora to resist detrimental microorganisms, the development of multidrug resistance, addiction, toxicity, and other related syndromes. Therefore, such kind of practice should be discouraged.

The second major source of information on self-prescribed drugs was from previous prescriptions for the same illness and this result was analogous to the findings of the study conducted in India. However, as the respondents were younger, they were also influenced by other sources like previous illness experiences, opinions of family members, friends and local people, and advertisement. This result resembles formerly conducted research findings.

Self-medication can only be considered a part of self-care if legitimate use of medicaments can be ensured. It may lead to accidental drug toxicity as there is always a risk of using expired drugs and also sharing with friends or taking medicines that have been actually prescribed for other problems. Cosmeceuticals are compounds with active ingredients that have beneficial physiological effects due to their pharmacological actions compared with the lack of such actions in inert cosmetics. In the current study, significantly higher levels of users than nonusers of OTC cosmeceuticals were encountered among female students.

In the present study, a significant number of participants thought that the topical application of OTC cosmeceuticals would pose no hazards. The lack of awareness of potential hazards of cosmeceuticals might cause severe and even fatal adverse effects. One prominent example of such hazards is the use of retinoic acid, the most important

active metabolite of vitamin A, as a skincare cosmeceutical, which might cause congenital teratogenicity in pregnant women, among other side effects.

In the current study, there was no significant difference in the use, knowledge and awareness of hazards, as well as other parameters of different OTC drugs and OTC cosmeceuticals. This might be because of the lack of academic curricula with any information dealing with this matter in the health colleges. Continuing medical education was reported to be effective in improving clinician information to overcome patient medication misuse. Additional studies are necessary to evaluate the knowledge and awareness of pharmacists, especially those working at community pharmacies, about the adverse effects and drug interactions of OTC cosmeceuticals, as pharmacists are the main source of information for a large public sector.

CONCLUSION:

This article describes concept of OTC medicines, products and practices in India against the background of globally prevalent regulations and practices. However, OTC medicine can act as a double-edged sword and due consideration must be given to safety, abuse, and patient education. Strict regulation for classification, distribution, and sale of OTC medicines is the need of the hour. All stakeholders need to come together

and join hands to rationalize use of OTC medicines in India and help eradicate the further possible consequences and prioritize patients' safety.

REFERENCES:

- [1] Esher A, Coutinho T. Uso racional de medicamentos, farmacoeconomia e usos do metilfenidato. *Ciencia Saude Coletiva*.22,2017,2571–2580.
- [2] WHO: World Health Organization. The Safety of Medicines in Public Health Programmes: Pharmacovigilance an Essential Tool. WHO; Geneva, Switzerland: 2006.
- [3] Costa C.M.F.N., Silveira M.R., Acurcio F.D.A., Junior A.A.G., *et al.* Use of medicines by patients of the primary health care of the Brazilian Unified Health System. *Rev. Saude Pub.* 51, 2017,18.
- [4] Sansgiry S.S., Bhansali A.H., Bapat S.S., Xu Q. Abuse of over-the-counter medicines: A pharmacist's perspective. *Integr. Pharm. Res. Pract.* **6**, 2016,1–6.
- [5] Ruiz M.E. Risks of Self-Medication Practices. *Curr. Drug Saf.* **5**, 2010,315–323.
- [6] Fereidouni Z., Morandini M.K., Kalyani M.N. Experiences of self-medication among people: A qualitative meta-synthesis. *DARU J. Pharm. Sci.* **27**,2019,83–89.

- [7] Doomra R., Goyal A. NSAIDs and self-medication: A serious concern. *J. Fam. Med. Prim. Care*.9, 2020, 2183–2185.
- [8] Barros BS, Zaenglein AL. The use of cosmeceuticals in acne: help or hoax? *Am J Clin Dermatol*. 18(2), 2017, 159–163.
- [9] Bowe WP, Shalita AR. Effective over-the-counter acne treatments. *Semin Cutan Med Surg*. 27(3), 2008, 170–176
- [10] Albusalih FA, Naqvi AA, Ahmad R, Ahmad N. Prevalence of self-medication among students of pharmacy and medicine colleges of a public sector university in Dammam city, Saudi Arabia. *Pharmacy (Basel, Switzerland)*. 5(3), 2017,51.
- [11] Dawood OT, Hassali MA, Saleem F, Ibrahim IR, Abdulameer AH, Jasim HH. Assessment of health seeking behaviour and self-medication among general public in the state of Penang, Malaysia. *Pharm Pract (Granada)*. 15(3), 2017.
- [12] Rekha MS, Roopashree, Rekha MB, Purushotham N. A study on use of over the counter drugs among 1st year medical students in a tertiary care teaching hospital. *Res Rev J Pharmacol Toxicol Stud*. 3, 2015, 20-4.
- [13] Shankar PR, Partha P, Shenoy N. Self-medication and nondoctor prescription practices in Pokharavalley, Western Nepal: A questionnaire-based study. *BioMed Central*. 3, 2012, 1-7.
- [14] Lessenger JE, Feinberg SD. Abuse of prescription and over-the counter medications. *J Am Board Family Med*. 21, 2008, 45-54.