Evaluation of Self-Medication Practice among Pharmacy Students among Pharmacy Students in Roorkee (Haridwar)
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Abstract

The endeavor of this online exploratory study was to describe and evaluate the self-medication practices, reasons behind self-medication, use of antibiotics without prescription among pharmacy graduates in India. The area of interest for the survey is in a students from the “Pharmacy students in Roorkee Dist. Haridwar” using a Sami-structured questionnaire. Data concerning demographic characteristics, medication use habit, and self-medication were collected thought a self-reported questionnaire with open and closed-ended questions. Prior to answering the questionnaire, the students were given a brief explanation about the intention of the study. The choice of question as well as the list of symptoms that might have been self-medicated was based on the findings of previous studies. Medication knowledge was evaluated by the number of correct answer. A students study was conducted in March 2015 with in 100 students from pharmacy fields to test the instrument, determine application time, and clarify question from the students. The issue of self-medication should be addressed by the respective Pharmacy council and other health authorities of India.

Keywords: Self-medication, Pharmacy Graduates, India, OTC drugs.

INTRODUCTION

Self-medication is the medically unsolicited use of prescription and/or (OTC) Over-The Counter drugs. The practice is becoming a form of self-care [1] and is a global trend that is encouraged when it deals with minor illness[2] Self-medication is not restricted to drugs, it also encompasses use of prescription drugs like antibiotics[3] particularly in countries where there are no strict regulations and prescription drugs are freely dispensed. The employ of medications without any medical consultation may result in adverse drug reactions and drug toxicity. Self-medication, as it is called, is not only restricted to the use of over-the-counter (OTC) drugs, but it may also involve the use of prescription drugs. This practice is associated with an increased possibility of antibiotic resistance, polypharmacy, drug interactions and drug abuse[4].

Health, Disease & Drug Use

According to WHO, health is defined as state of complete physical, mental, and social well-being and not merely the absence of Diseases or infirmity [13]. As with all human actions, the decisions regarding health behavior are influenced in part by external stimuli e.g. a pharmacist advising a patient and also by internal states such as those thoughts and feelings and beliefs. Patients understand their illness within their own conceptual framework, which includes their own beliefs, thoughts and feelings. They process that information and then make their own decision and act. Disease and illness are different. Illness happens to humans i.e. illness is a subjective state of the person who feels aware of not being well. Disease happens to organs i.e. disease is a physiological/psychological dysfunction. Disease/injury is resulting from an unfavorable interaction of agent, host, and environment. Most simply stated, an agent is a factor whose presence (e.g. Tubercle bacilli) or absence (e.g. vitamin B deficiency) causes disease. Host factors refer to those physical and psychological attributes of a person that predisposes or protects from disease (e.g. advanced age, antibody levels)[5].
| Self Care | Self Care Concepts | Self-Medication |
|-----------|--------------------|-----------------|
| Self-care behavior is not new, but rather the oldest and most widely used of all forms of behavior that affect the health of individuals. However, the use of the term in the health field is new. The contemporary self-care is a response of developments and attitudes regarding the role of individuals that occurred over the past hundred years or so the rapid changes in the organization, content and delivery of formal health services also suggest another reason for maintaining the term self-care and developing associated theory and concepts. In the future, even more information will become available to help the consumer in matters concerning self-care and self-medication medicines [6]. | Self-care has been defined as substitute, supplementary or additive to professional care, or as a discrete component in the health care delivery system. As there are many authors and professions concerned with health and self-care, there are also different definitions to self care. However, all definitions agree on the main components/concepts of self-care: diagnosis, self-medication, self-treatment and/or patient participation in professional care. Self-care is active; it is participatory rather than passive receiving of care or directives given by professionals [7]. | Self-medication is the treatment of common health problems with medicines specially designed and labeled for use without medical supervision and approved as safe and effective for such use. Medicines for self-medication are often called 'nonprescription' or 'over the counter' (OTC) and are available without a doctor's prescription through pharmacies. In some countries OTC products are also available in supermarkets and other outlets. Medicines that require a doctor's prescription are called prescription products (Rx products)[8]. |

**METHODOLOGY**

The study was carried out prospectively out between the month of March 2015 and May 2015. The area of interest for the survey is in a students from the “Pharmacy students in Roorkee Dist. Haridwar” using a Sami-structured questionnaire. Data concerning demographic characteristics, medication use habit, and self-medication were collected thought a self-reported questionnaire with open and closed-ended questions. Prior to answering the questionnaire, the students were given a brief explanation about the intention of the study. The choice of question as well as the list of symptoms that might have been self-medicated was based on the findings of previous studies. Medication knowledge was evaluated by the number of correct answer. A students study was conducted in March 2015 with in 100 students from pharmacy fields to test the instrument, determine application time, and clarify question from the students.

The following healthcare programs were evaluated: Biological Sciences, physical Education, Nursing, Medicine and Psychology. Non-healthcare programs-Visual, Food Engineering, Geography, and Marine Biology-were similar to healthcare programs in terms and age of students. The sample included all first and last year students enrolled in these programs.

Questionnaires were given at the start of the interview, the investigators returned to each session until the day of final exam.

**RESULT AND DISCUSSION**

The study were carried on the under graduate students (05%), post graduate students (09%), Ph.D. (04%) & other students (71%). The average expenditure of the actual drug users since last 3 months was 20 less then Rs- 100 (20%), having Rs- 100-200 (59%), having Rs- 200-300(11%) and more then Rs- 300(10%). Students used self-medication for RTI (14%), GI disease (60%), STDS (05%), for eye diseases (32%), headache/fever (89%), skin diseases (33%) and for other (02%). The drug users within 24 hours were reported duration of illnesses/symptoms of illnesses (70%), having 1-7 days (06%),5-12 weeks(04%) & users having above 12 weeks users having above 12 weeks. The category of the drug frequently used was Antimicrobials/Antibiotic, analgesics/antipyretics drugs, respiratory drugs, GI drugs, vitamins & ORS having 24%,50%,06%,17%,10% & 02% respectively. The source of drug used were self-medication, read label, leaflet or promotional material, friends, major % found to obtained advice of the health care providers such as physicians, Pharmacist, nurses and health assistants but without formal prescription.
## Observation of Data

| S.No. | Characteristics | Actual drug user (n=100) | % Frequency |
|-------|-----------------|--------------------------|-------------|
| 1     | Age             |                          |             |
|       | Less than 15 year | 05                       | 05          |
|       | 15 to 20        | 21                       | 21          |
|       | 20 to 25        | 70                       | 70          |
|       | More than 26    | 04                       | 04          |
| 2     | Gender          |                          |             |
|       | Male            | 88                       | 88          |
|       | Female          | 12                       | 12          |
| 3     | Area of living  |                          |             |
|       | Ruler           | 59                       | 59          |
|       | Aruban          | 38                       | 38          |
|       | Other           | 03                       | 03          |
| 4     | Religion        |                          |             |
|       | Hindu           | 84                       | 84          |
|       | Muslim          | 11                       | 11          |
|       | Sikh            | 03                       | 03          |
|       | Christian       | 02                       | 02          |
| 5     | Habits          |                          |             |
|       | Smokers         | 19                       | 19          |
|       | Drinkers        | 21                       | 21          |
| 6     | Education level |                          |             |
|       | Under Graduate  | 05                       | 05          |
|       | Post Graduate   | 09                       | 09          |
|       | Ph. D           | 02                       | 02          |
|       | Other           | 39                       | 39          |
| 7     | Course          |                          |             |
|       | D. pharma       | 35                       | 35          |
|       | B. pharma       | 59                       | 59          |
|       | M. pharma       | 06                       | 06          |
| 8     | Year of Education |                      |             |
|       | First           | 15                       | 15          |
|       | Second          | 43                       | 43          |
|       | Third           | 18                       | 18          |
|       | Fourth          | 24                       | 24          |
| 9     | Average Drug expenditure for last 3 month |           |             |
|       | Less than 100   | 20                       | 20          |
|       | 100 to 200      | 59                       | 59          |
|       | 200 to 300      | 11                       | 11          |
|       | More than 300   | 10                       | 10          |
| 10    | Illness/Symptom of illness |        |             |
|       | RTI             | 14                       | 14          |
|       | GI disease      | 60                       | 60          |
|       | STDs            | 05                       | 05          |
|       | Eye disease     | 32                       | 32          |
|       | Headache/fever  | 89                       | 89          |
|       | Skin disease/injury | 33                       | 33          |
|       | Other           | 02                       | 02          |
| 11    | Duration of illness before shaking the self medication |       |             |
|       | Within 24 hours | 70                       | 70          |
|       | 1 to 7 days     | 18                       | 18          |
|       | 1 to 4 day      | 06                       | 06          |
|       | 5 to 12 weeks   | 04                       | 04          |
|       | Above 12 Weeks  | 02                       | 02          |
| 12    | Types of request the drug of consumers |       |             |
|       | By mentioning the name of the drugs | 63   | 63          |
|       | Telling the symptom of the illness | 25   | 25          |
|       | Showing an old sample/package of the drug | 08   | 08          |
|       | Presenting piece of paper | 04   | 04          |
13 **Requested category of drugs for self-medication**

| Category                 | Education level | % Frequency |
|--------------------------|-----------------|-------------|
| Antibiotic/Antimicrobial | 24              | 24          |
| Analgesic/Antipyretic    | 50              | 50          |
| Respiratory drugs        | 06              | 06          |
| GI drugs                 | 17              | 17          |
| Vitamins                 | 10              | 10          |
| ORS                      | 02              | 02          |

14 **Source of information/advice**

| Information Source                     | Education level | % Frequency |
|----------------------------------------|-----------------|-------------|
| Received no information                | 11              | 11          |
| Read information materials             | 08              | 08          |
| Advised by friends, family and Neighbours | 15              | 15          |
| Advised by doctors, Pharmacist, Nurses & other health works without prescription | 72              | 72          |
| Other                                   | 03              | 03          |

15 **Visit to purchase drugs without prescription last 3 months**

| Frequency | Education level |
|-----------|-----------------|
| Once      | 40              |
| Twice     | 47              |
| Thrice    | 07              |
| Four or more | 06            |

16 **Type of drug information you require**

| Information Required                  | Education level | % Frequency |
|---------------------------------------|-----------------|-------------|
| Correct name of drug                  | 90              | 90          |
| Indication                            | 55              | 55          |
| Dose, Frequency and duration          | 65              | 65          |
| Side effect, contraindication or precaution | 20              | 20          |
| Storage of drug at home               | 78              | 78          |

17 **Dosage forms preferences of drug consumer**

| Preference  | Education level | % Frequency |
|-------------|-----------------|-------------|
| Tablet      | 71              | 71          |
| Capsule     | 33              | 33          |
| Injection   | 05              | 05          |
| Liquid preparation | 22            | 22          |
| Other       | 03              | 03          |

18 **Drug storage place at home and response**

| Response                                      | Education level | % Frequency |
|-----------------------------------------------|-----------------|-------------|
| Out of the reach of children                  | 92              | 92          |
| All drugs in the refrigerator                 | 14              | 14          |
| All drugs in the kitchen/bathroom             | 04              | 04          |
| All drugs in one place but separated          | 81              | 81          |

19 **Knowledge or different parameters of drugs**

| Parameter                                 | Education level | % Frequency |
|-------------------------------------------|-----------------|-------------|
| Taking drugs with alcohol                 | 17              | 17          |
| Sharing of drugs                          | 32              | 32          |
| Checking of expiry dates before taking    | 87              | 87          |

20 **Other information about drugs**

| Information                              | Education level | % Frequency |
|------------------------------------------|-----------------|-------------|
| Known                                    | 63              | 63          |
| Unknown                                  | 37              | 37          |

### Table 1: Characteristics of Actual Drug User (n=100)

| Characteristics       | Percentage |
|-----------------------|------------|
| Education level       |            |
| Under Graduate        | 05         |
| Post Graduate         | 09         |
| Ph. D                 | 02         |
| Other                 | 39         |

### Table 2: Characteristics of Actual Drug User (n=100)

| Characteristics | Percentage |
|-----------------|------------|
| Course          |            |
| D. pharma       | 35         |
| B. pharma       | 59         |
| M. pharma       | 06         |
Course of actual drug user

| Characteristics | Actual drug user (n=100) | % Frequency |
|-----------------|--------------------------|-------------|
| Average Drug expenditure for last 3 month | | |
| Less than 100   | 20                       | 20          |
| 100 to 200      | 59                       | 59          |
| 200 to 300      | 11                       | 11          |
| More than 300   | 10                       | 10          |

Average Drug expenditure for last 3 month of actual drug user

| Characteristics | Actual drug user (n=100) | % Frequency |
|-----------------|--------------------------|-------------|
| Illness/Symptom of illness | | |
| RTI             | 14                       | 14          |
| GI disease      | 60                       | 60          |
| STDs            | 05                       | 05          |
| Eye disease     | 32                       | 32          |
| Headache/fever  | 89                       | 89          |
| Skin disease/injury | 33                   | 33          |
| Other           | 02                       | 02          |
Illness/Symptom of illness of actual drug user

| Characteristics | Actual drug user (n=100) | % Frequency |
|-----------------|-------------------------|-------------|
| Duration of illness before shaking the self-medication | | |
| Within 24 hours | 70 | 70 |
| 1 to 7 days | 18 | 18 |
| 1 to 4 weeks | 06 | 06 |
| 5 to 12 weeks | 04 | 04 |
| Above 12 Weeks | 02 | 02 |

Duration of illness before shaking the self-medication

| Characteristics | Actual drug user (n=100) | % Frequency |
|-----------------|-------------------------|-------------|
| Types of request the drug of consumers | | |
| By mentioning the name of the drugs | 63 | 63 |
| Telling the symptom of the illness | 25 | 25 |
| Showing an old sample/package of the drug | 08 | 08 |
| Presenting piece of paper | 04 | 04 |
| Other | 02 | 02 |

Types of request the drug of consumers

| Characteristics | Actual drug user (n=100) | % Frequency |
|-----------------|-------------------------|-------------|
| Requested category of drugs for self-medication | | |
| Antibiotic/Antimicrobial | 24 | 24 |
| Analgesic/Antipyretic | 50 | 50 |
| Respiratory drugs | 06 | 06 |
| GI drugs | 17 | 17 |
| Vitamins | 10 | 10 |
| ORS | 02 | 02 |
### Characteristics

| Actual drug user (n=100) | % Frequency |
|--------------------------|-------------|
| 14 Source of information/advice |
| Received no information | 11 | 11 |
| Read information materials | 08 | 08 |
| Advised by friends, family and Neighbours | 15 | 15 |
| Advised by doctors, Pharmacists, Nurses & other health workers without prescription | 72 | 72 |
| Other | 03 | 03 |

#### Source of information/advice for self-medication

- Received no information (11%)
- Read information materials (8%)
- Advised by friends, family and Neighbours (15%)
- Advised by doctors, Pharmacists, Nurses & other health workers without prescription (72%)
- Other (3%)

### Characteristics

| Actual drug user (n=100) | % Frequency |
|--------------------------|-------------|
| 15 Visit to purchase drugs without prescription last 3 months |
| Once | 40 | 40 |
| Twice | 47 | 47 |
| Thrice | 07 | 07 |
| Four or more | 06 | 06 |

#### Visit to purchase drugs without prescription last 3 months

- Once (40%)
- Twice (47%)
- Thrice (7%)
- Four or more (6%)

### Characteristics

| Actual drug user (n=100) | % Frequency |
|--------------------------|-------------|
| 16 Type of drug information you require for self-medication |
| Correct name of drug | 90 | 90 |
| Indication | 55 | 55 |
| Dose, Frequency and duration | 65 | 65 |
| Side effect, contraindication or precaution | 20 | 20 |
| Storage of drug at home | 78 | 78 |
CONCLUSION

The questioner we employed to assess self-medication was useful to characterize the present sample, the pattern of medication use and the level of medication knowledge. The pharmacy students were used self-medication with OTC and antimicrobial agents with NSAIDs. A home pharmacy was the risk factor for self-medication. Paracetamol and other NSAIDs were the most frequently used OTC medicines for self-medication. The 89% of the students were used headache/Fever. And 60% students were used GI disease, and 33% student was used skin disease/injury, and 32% student was used eye disease. Use self-medication. And more than Rs-500 expend on self-medication. Amoxicillin was the most frequently used antibiotic. Headache/fever, GI disease and RTI were the three major reasons for self-medication. Friends, Relatives and medicine retail shops responsible for promoting self-medication among the pharmacy students. The presence of pharmacists in all medicine retail outlets can play a significant in controlling some of the factors that promote the self-medication among the pharmacy student. In summary, the fact that being a healthcare student was associated with higher medication knowledge, but not with less self-medication, suggests that medication knowledge might contribute to increase self-medication. This should be taken into account when designing educational interventions relating to self-medication. This cross-sectional study has found that self-medication is highly prevalent among pharmacy students at the Rookee (Haridwar). The appraisal of self-medication is important for studying proper drug use. In this study, pharmacy student awareness of several facts about self-medication seems appropriate; however, more effort to endorse responsible self-medication are needed. In addition, strict policies from health authorities should be functional to forbid the provision of medicines without a valid prescription.

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