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EVALUATION OF MEDICATION KNOWLEDGE, ATTITUDES AND SELF MEDICATION PRACTICES AMONG PHARMACY STUDENTS

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Abstract

Self-medication has become prevalent in the modern era and can lead to serious adverse drug reactions and drug interactions. Hence, this study was carried out to evaluate and assess the knowledge, attitudes and practices of medication use among pharmacy students of the University of the Punjab, Lahore, Pakistan. A prospective cross sectional study was performed on 600 pharmacy students of different professional years of Pharm.D. from November 2022 to May 2023. The sample was taken from each professional year and data were analyzed by using descriptive statistics and percentile analysis. Three sections of the questionnaire were developed section “A” including 13 true false questions to measure knowledge, section “B” comprising of 5 questions for attitude and section “C” encompassing 10 questions for medication practice. A total of 600 students completed the survey. Knowledge of students on duration of therapy of antihypertensive, drug interactions with antacids, medication frequency and storage conditions of ointment, gel and syrup were answered correctly by more than 50% of the respondents. Among the respondents, 80.2% had awareness

regarding Drug-Drug and Drug-Food interactions. The study revealed good attitude of the students regarding their trust on pharmacists as consultant of drug information (98.2%), their necessity of dispensing and consultation of medicines (96.8%) and need of consultation on unusual effects of the medications by pharmacist (85.5%). The results concluded that, 83.3% of the respondents intended to self-medicate on minor aliments like colds and 42% of them practiced sharing their medicines to others. Hence, intervention is required towards enhancing drug knowledge and safe medication practices by conducting drug education seminars and by improving the services of professional pharmacists to educate their general public.

Keywords: Self-Medication, Pharmacists, Medication Practices, Medication Knowledge

Introduction:

Self-medication, defined as the treatment of disorders or symptoms through self-diagnosis, encompasses various practices such as obtaining medications without a prescription, reusing old prescriptions for newer medications, sharing medications with others, or using unused medications stored at home. This phenomenon involves two main types of medications: Over-the-Counter (OTC) medicines, available without a prescription, and prescription medicines (Rx Products), requiring a doctor's prescription for purchase (1). The World Health Organization (WHO) recommends appropriate self-medication to alleviate the burden on medical services for minor disorders, particularly in resource-scarce environments, emphasizing its potential to treat and prevent non-consultation-worthy diseases (2). When employed correctly, self-medication can offer practicality, alleviate minor symptoms, and reduce treatment costs.

The surge in self-medication practices is attributed to heightened public awareness of medications facilitated by sources like the internet, coupled with a lack of awareness regarding associated risks. Factors contributing to this rise include the impact of direct-to-consumer advertising, illicit practices by pharmacy personnel, lack of legal enforcement, low literacy levels, poverty, demanding lifestyles, and the transition of certain drugs from prescription-only to over-the-counter status (3, 4). Additionally, apprehensions about expensive medical treatments, concerns about nosocomial infections, prior experiences with medications for similar ailments, and limited availability of healthcare personnel are recognized as contributing factors to the escalating prevalence of self-medication (5, 6). Patients often resort to seeking advice on minor health issues from pharmacy personnel due to the perceived hurdles and inconvenience associated with scheduling appointments with physicians (7). In summary, the practice of self-medication is complex and multifaceted, influenced by a range of factors that necessitate a comprehensive understanding for effective intervention and management. However, improper self-medication, lacking reliable medical information, poses risks to human well-being, leading to severe health complications, resource wastage, increased susceptibility to pathogens, and concerns such as prolonged morbidity and adverse drug reactions.

Research indicates that self-medication is often the initial response to early illness symptoms, serving as a primary tool for addressing minor ailments that may not warrant a physician's visit. In regions with limited healthcare facilities, self-medication becomes a necessary tool even for treating more sinister pathologies. A survey in Jordan revealed a significant proportion (39.5%) of respondents admitted to using antibiotics without a prescription (8). The prevalence of self-medication is significantly elevated on a global scale, with reported rates of approximately 68.07% in Europe, 92% in Kuwait, 31.02% in India, and 59.4% in Nepal. Studies conducted in Pakistan have confirmed a self-medication prevalence of around 51.02%. The widespread practice of self-medication inadvertently contributes to the irrational use of medical drugs, posing potential hazards to public health (9). Previous research studies have observed varying rates of self-medication incidence among medical students, with reports of 94% in Hong Kong, 88% in Croatia, and 54% in Turkey (Fadare & Tamuno, 2018). Similarly, investigations conducted in Karachi revealed self-medication prevalence rates of 76%, while in Abbottabad, the rate was reported to be 95.5%. A study conducted in Islamabad highlighted economic reasons as a significant contributing factor

driving students toward self-medication (Qasim et al., 2017). The research conducted in Karachi, Abbottabad, and Islamabad consistently identified antibiotics, antipyretics, and analgesics as the most commonly utilized medications in the context of self-medication (Mostafa, Hany & Ayed, 2015) (10).

Methodology:

Study Design:

The study was a prospective cross-sectional survey undertaken to assess Medication Knowledge, Attitudes, and Self-Medication Practices among undergraduate Pharmacy students.

Study Location:

The study was conducted at Punjab University College of Pharmacy, University of the Punjab, Lahore, Pakistan.

Study Duration:

The research study spanned over seven months, commencing from November 2022 and concluding in May 2023.

Inclusion Criteria:

- Individuals aged 17 years or above.
- Enrolled in Punjab University College of Pharmacy.
- Students pursuing undergraduate studies in Pharmacy.
- Residing in urban areas.

Exclusion Criteria:

- Individuals below 17 years of age.
- Employed individuals.
- Non-pharmacy students.

Ethical Approval:

The study received ethical approval and clearance from the Research Ethics Committee/Institutional Review Board of Punjab University College of Pharmacy, University of the Punjab, Lahore, Pakistan.

Sample Size Calculation:

Convenient sampling methodology was employed.

Questionnaire Adoption:

The questionnaire used in this study was adapted from a prior research work by Atsbeha, Berhanemeskel Weldegerima, and Seada Ahmed Suleyman titled "Medication knowledge, attitude, and practice among University of Gondar first-year students, northwestern Ethiopia" (Atsbeha and Suleyman).

Statistical Analysis:

Descriptive statistics and percentile analysis were utilized for data interpretation.

Gantt Chart:

November 2022	**November 2022 To May 2023**	**February 2023 To April 2023**	**May 2023**	**May 2023**	**May 2023**
Proposal	Literature review	Data Gathering	Data Entrance	Statistical Inspection	Report Writing

Results:

Socio-Demographic Attributes of Pharmacy Students:

Table 1 demonstrates the socio-demographic attributes of pharmacy undergraduate students. In the current study, 600 participants reported amongst which 24.2 % (n=145) were men and 75.8% (n=455) women. Most of the participants were aged between 21 and 24 years. There were 201 (33.5%) respondents with family members presently working as health professionals and 179 (29.8%) respondents whose family members were presently studying as health sciences students while 220 (36.7%) had no health related family.

Table 1: Socio-Demographic Attributes of Pharmacy Students:

Variables	Frequency (%)
1.Gender	
a) Male	145 (24.2)
b) Female	455 (75.8)
2.Age	
a) 17-20	238 (39.7)
b) 21-24	355 (59.2)
c) 25-28	7 (1.2)
3.Family Background	
a)Presence of health professional in the family	201 (33.5)
b)Family member who joined colleges/universities to study health sciences in the family	179 (29.8)
c) No health related family	220 (36.7)
4.Professional Year	
a) First Prof.	77 (12.8)
b) Second Prof.	143 (23.8)
c) Third Prof.	141 (23.5)
d) Fourth Prof.	88 (14.7)
e) Final Prof.	151 (25.2)

Students' Response on Medication Knowledge Questions:

Table 2 demonstrates students' medication knowledge on rational drug usage. Of all the participants (n=600), 313 (52.2%) addressed that it is incorrect to end antihypertensive drug usage when blood pressure drops to normal value. Also 121 (20.2%) of the participants believed that antimicrobials have to be stopped when the signs and symptoms of fever or pharyngitis are relieved. Out of all the participants (n=600), 548 (91.3%) addressed rightly that the overdose of paracetamol can cause liver toxicity, but 453 (75.5%) knew that overconsuming vitamins have harmful effect on human bodies. Out of the total participants (n=600), 421 (70.2%) knew how to use antacids correctly while 384 (64%) knew that antacids must not be added into all prescriptions.

Majority of the participants 458 (76.3%) knew rightly about the correct way of consuming medication thrice a day. Only a few of the participants, 100 (16.7%) thought that dose of cough syrup is 1 bottle per usage. Out of the total participants (n=600), 204 (34%) said that not consuming the full dosage of a drug has no effect. Information of storage of ointment or gel and syrup was seen to be satisfactory, 84.8% and 82.7% of the participants responded that keeping an ointment or gel and syrup in the fridge could not prolong the expiry date, respectively. Students' information on drug-food interaction was found to be satisfactory, 80.2% of them knew that consuming medication with food, drinks; tea or alcohol will interact with the effect of medication.

Table 2: Students' Response on Medication Knowledge Questions:

Questions	Response	
	Correct (%)	Incorrect (%)
1. Antihypertensive drugs could be discontinued when blood pressure returns to a normal range.	287 (47.8)	313 (52.2)
2. You can discontinue the use of antibiotics by yourself when the symptoms of fever or sore throat are relieved.	121 (20.2)	479 (79.8)
3. Overuse of Panadol (Paracetamol) will cause liver toxicity.	548 (91.3)	52 (8.7)
4. Antacids should be chewed before swallowing to achieve a better effect.	179 (29.8)	421 (70.2)
5. Antacids should be added into all prescriptions to avoid GI upset.	216 (36)	384 (64)
6. Taking all medicines with empty stomach helps to achieve optimum effect.	71 (11.8)	529 (88.2)
7. Taking medicines three time a day means: taking at breakfast, lunch and dinner time.	458 (76.3)	142 (23.7)
8. Not taking full dose of a medication does not have any effect.	204 (34)	396 (66)
9. Vitamins are health food, so overusing it will not cause negative effects to human body.	147 (24.5)	453 (75.5)
10. Storing ointment or gel in the refrigerator could extend the expiration date.	91 (15.2)	509 (84.8)
11. Storing syrup in the refrigerator could extend the expiration date.	104 (17.3)	496 (82.7)
12. Dosage of cough syrup is one bottle per use.	100 (16.7)	500 (83.3)
13. Taking medicine with food, drink, tea or alcohol will interfere with effect of medicine.	421 (80.2)	118 (19.7)

Attitude towards Pharmacist:

Table 3 demonstrates students' behavior towards drug specialist's service on medicines. As a whole, students depicted excellent attitude towards pharmacist and trusted their consultation. Out of all the participants (n=600), 589 (98.2%) of the students trusted drug specialist's counselling on drugs, 581 (96.8%) believed on the need of dispensing and advice by drug specialist, 526 (87.7%) agreed that traditional medications should be dispensed and consulted by a drug specialist, 513 (85.5%) believed on the need of consultation on side effects of the medicines by pharmacist and 500 (83.3%) believed that health supplement should be dispensed and consulted by drug specialist.

Table 3: Students' Response on Attitude Questions

Questions	Response	
	Positive Attitude (%)	Negative Attitude (%)
1. Trustworthiness of a pharmacist as a consultant of drug information.	589 (98.2)	11 (1.8)
2. Necessity of dispensing and consultation of medicines by pharmacist?	581 (96.8)	19 (3.2)
3. Necessity of dispensing and consultation of traditional medicines by pharmacist?	526 (87.7)	74 (12.3)
4. Necessity of consultation on unusual effects of the medication by pharmacist?	513 (85.5)	87 (14.5)
5. Necessity of dispensing and consultation of health supplements by pharmacist?	500 (83.3)	100 (16.7)

Medication Practices:
Table 4 demonstrates reaction of participants in regards to their medicine practices. Greater than 26% of the students seek for non-prescribed medication in the retail pharmacy when they suffer from cold and only 17% did not seek for non-prescribed medication from retail pharmacy. Students said that about 42% shared their prescribed medicines and 50.5% take customized medication along with modern medication. Forty four percent of the participants took medication by their companion's advice and 54% used to stop their prescribed medication on their own when their manifestations were relieved. Students reported that 72% of their source of the prescribed medication came from retail pharmacy.

Table 4: Students' Response on Medication Practice Questions

Questions	Response		
	Always/Usually (%)	Sometimes (%)	Seldom/Never (%)
1. When you have a cold, will you seek for non-prescription medicines in the community pharmacy?	158 (26.3)	342 (57)	100 (16.7)
2. When you have a cold, will you ask community pharmacist for medication without prescription?	129 (21.5)	315 (52.5)	156 (26)
3. Did you ever give your prescription medicines to others?	44 (7.3)	208 (34.7)	348 (58)
4. Will you combine traditional medicine when you take western medicine?	62 (10.3)	241 (40.2)	297 (49.5)
5. Will you try medicines according to your friend's suggestion?	34 (5.7)	230 (38.3)	336 (56)
6. When your symptoms are relieved, will you discontinue your prescription medicines by yourself?	130 (21.7)	191 (31.8)	279 (46.5)
7. Did you ever receive your prescription from a hospital and have it dispensed in the community pharmacy?	131 (21.8)	300 (50)	169 (28.2)
8. Do you consult your pharmacist when you receive a special or an uncommon dosage form of a medicine (e.g; Nasal spray or suppository)?	267 (44.5)	226 (37.7)	107 (17.8)
9. When you visit your physicians, do you bring along all the medications you are currently taking?	205 (34.2)	187 (31.2)	208 (34.7)
10. Will you check with your pharmacist before taking medicines that you have never used before?	282 (47)	213 (35.5)	105 (17.5)

Discussion:
Globally, numerous investigations have documented the widespread occurrence of self-medication among healthcare professionals, both in developed and developing nations. A cross-sectional study conducted at Aga Khan University in Karachi, Pakistan, revealed a substantial prevalence of self-medication, reaching 76% (11). The study further identified analgesics (88.3%), antipyretics (65.1%), and antibiotics (35.2%) as the most commonly utilized medications. Consistent findings were reported in studies conducted in Serbia and India, where the overall prevalence of self-

medication was 79.9% and 78.6%, respectively (12, 13). Notably, a study in Kuwait reported an even higher prevalence of self-medication, reaching 97.8% (14). The findings of our cross-sectional study conducted among undergraduate Pharmacy students at Punjab University College of Pharmacy revealed notable disparities in medication knowledge and practices compared to a study among University of Gondar freshman students (15). While the Punjab University students exhibited superior medication knowledge, certain aspects of medication practices indicated room for improvement. The data underscored the robust medication knowledge of Punjab University pharmacy students. Notably, a significant proportion of participants demonstrated awareness about the appropriateness of discontinuing anti-hypertensive therapy. However, a portion believed it was acceptable to cease treatment even when blood pressure normalized, indicating a need for targeted education in this aspect. Divergent perspectives were evident in the understanding of antibiotic usage. A substantial proportion of Punjab University students disagreed with discontinuing antibiotics upon symptom relief, showcasing a commendable grasp on infectious disease management. This insight is critical in combating antibiotic resistance. Conversely, Gondar University students exhibited misconceptions about antibiotic usage, emphasizing the importance of tailored educational interventions (15). The study highlighted the awareness of potential drug interactions, liver toxicity risks with paracetamol, and the inappropriate storage of pharmaceuticals. Punjab University students consistently demonstrated higher awareness in these areas compared to their Gondar counterparts. Concerns regarding medication practices, such as sharing prescribed drugs and merging traditional medications with modern ones, were identified. Factors commonly linked to self-medication included the belief that the illness was mild, previous encounters with the same medication, and familiarity with the symptoms. This aligns with findings from a study conducted in Tanzania (16). These practices, although prevalent in a fraction of students, underscored the necessity for targeted educational campaigns to enhance medication safety.

Conclusion:

In conclusion, our research study indicates that Punjab University Pharmacy students exhibit commendable medication knowledge and attitudes, surpassing their Gondar counterparts in several aspects. The results concluded that, 83.3% of the respondents intended to self-medicate on minor aliments like colds and 42% of them practiced sharing their medicines to others. Hence, intervention is required towards enhancing drug knowledge and safe medication practices by conducting drug education seminars and by improving the services of professional pharmacists to educate their general public. However, identified gaps in medication practices suggest the need for educational interventions to ensure safer and more informed medication use. The study emphasizes the pivotal role of pharmacists in providing clear, appropriate drug information and underscores the importance of ongoing educational initiatives. Initiatives such as educational symposiums and conferences within universities, coupled with financial support for robust educational strategies on safe medication practices, are recommended. Furthermore, the findings underscore the continued necessity for pharmacists to actively engage in medication counseling to enhance patients' understanding and promote safe and secure medication practices.

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