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Original Article

Assessment of Over-the-Counter (OTC) Drug Usage Patterns and Awareness among College Students

Simran Khanam, Saman Moin*, Rajesh Yadav

Faculty of Pharmacy, Mohammad Ali Jauhar University, Rampur, Uttar Pradesh, INDIA.

ABSTRACT

Objectives: The present study was conducted to assess the Knowledge, Attitude, and Practice (KAP) regarding the use of Over-the-Counter (OTC) drugs among 101 participants. **Materials and Methods:** A cross-sectional survey was carried out using a structured questionnaire. Participants. The majority of participants belonged to the 21-23 years age group (38.6%), with a mean age of 21.84 years. **Results:** The results showed that 83.2% of participants reported using OTC medicines, with most using them rarely (67.3%). - Fever (49.5%) and headache were the most common conditions for OTC drug use, and painkillers (64.4%) were the most frequently used medications. Convenience (39.6%) and avoiding doctor visits (29.7%) were the primary reasons for use. Awareness regarding OTC drugs was high, with 97% of participants demonstrating good knowledge. However, practice was only moderate in 62.4% of participants, and 66.3% exhibited a negative attitude toward OTC drug use. The mean scores were 5.79±0.47 for awareness, 2.18±0.61 for practice, and 1.10±1.03 for attitude. The Chi-square test showed no significant association between awareness and practice (p=0.839). **Conclusion:** The study concludes that despite high awareness, safe practices are not consistently followed, highlighting the need for educational interventions.

Keywords: Analgesics, Antihistamines, Antipyretics, Awareness, College students, Healthcare Behavior, Over-the-Counter Drugs, Rational Drug Use, Self-Medication, Usage Patterns.

Correspondence:
Saman Moin
Faculty of Pharmacy, Mohammad Ali Jauhar University, Rampur-244901, Uttar Pradesh, INDIA.
Email: samanmoin11@gmail.com

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INTRODUCTION

Over-the-Counter (OTC) painkillers are medicines that people can buy without a doctor's prescription. Common examples are paracetamol (acetaminophen) and ibuprofen. These medicines are widely used to treat pain and fever. They are easily available, not too expensive, and simple to use. Because of this, people often use them at home to treat small health problems without visiting a doctor.

However, many people think these medicines are completely safe, which is not always true. If they are used in the wrong way or without proper guidance, they can cause serious health problems such as:

- Liver damage.
- Kidney problems.
- Stomach bleeding.
- Harmful effects when mixed with other medicines or diseases.

Also, many people prefer self-medication (taking medicine on their own without medical advice), especially in places where healthcare services are limited (Almohammed *et al.*, 2024)

Self-medication with Over-the-Counter (OTC) painkillers is very common, especially in low-and middle-income countries. This happens because healthcare services may be hard to access, rules about medicines may not be strict, and people may not have enough health knowledge. In such situations, people often depend on their own experience, advice from friends or family, or suggestions from Pharmacy staff instead of consulting a doctor.

For example, studies from Saudi Arabia show that many people use painkillers on their own, but only a few truly understand their side effects or the correct dosage. Similarly, a study in Jordan found that although people know a little about the risks of these medicines, they do not fully understand how to use them safely (Abuhamdah *et al.*, 2024).

Commonly, pharmacists play an important role in helping people use OTC painkillers safely. They are usually the first people meet when buying medicines. Pharmacists can guide patients about which medicine to choose, how much to take, when not to use it, and when to seek medical help.

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However, studies show that only about one-third of people actually ask pharmacists for advice before using these medicines. This shows that there is still a lack of awareness and proper guidance.

Even though this topic is important, there is not much research in Libya about how pharmacists, University students, and the general public understand and use Over-the-Counter (OTC) painkillers, or how much they know about them (Elghazaly *et al.*, 2023).

University students are a special group because their behavior in using medicines is different. They can easily gets OTC drugs, think they have good knowledge about health, and face academic stress, which may lead them to treat themselves without consulting a doctor. FOR example, in Saudi Arabia, about 89.6% of medical and Pharmacy students use non-opioid painkillers without a prescription (Skarstein, 2024).

The general public also depends a lot on OTC painkillers. However, many people do not have proper knowledge about how to use them safely. Studies from different countries show that although people believe they know enough, in reality, they often do not understand the correct dosage, possible side effects, or drug interactions (Shampe *et al.*, 2021).

MATERIALS AND METHODS

Study Design

A cross-sectional, descriptive study design was employed to assess the usage patterns and awareness of Over-the-Counter (OTC) drugs among college students. This design is appropriate for collecting data at a single point in time and identifying trends, behaviors, and knowledge levels.

Study Setting

The study was conducted in selected University of Mohammad Ali Jauhar University (medical, pharmacy, and non-medical streams if applicable) located in Rampur U.P. The setting included undergraduate and postgraduate students from various academic disciplines.

Study Population

The study population comprised college students aged 18 years and above who were currently enrolled in the selected institutions.

Inclusion Criteria

- Students aged ≥18 years.
- Students are willing to participate voluntarily.
- Students who have used or are aware of OTC drugs.

Exclusion Criteria

- Students are unwilling to participate.
- Incomplete or improperly filled questionnaires.
- Students with professional medical qualifications (if you want to exclude bias).

Sample Size Determination

The study found that non-practitioners were the major users of OTC drugs, accounting for 83% of the participants. This suggests that occupation plays an important role in determining OTC drug use. Other factors such as age, gender, and year of study also influenced the usage pattern. The highest use was observed among students aged 21-23 years, and males showed slightly higher involvement than females. Therefore, occupation was identified as the strongest determinant of OTC drug usage in this study. The sample size for the present study was determined based on the number of participants who fulfilled the inclusion criteria and were willing to participate in the study. A total of 100 students from my college were selected for data collection through a structured questionnaire (Etikan *et al.*, 2021).

Sampling Technique

A convenience Random sampling technique was used to select participants from Mohammad Ali Jauhar University. Efforts were made to include students from diverse academic backgrounds to improve generalizability (World Health Organization, 2022).

Data Collection Tool

Data were collected using a self-administered structured questionnaire developed after reviewing relevant literature. The questionnaire contains four sections.

- **Demographic Information:** (Age, gender, course, year of study).
- **OTC Drug Usage Patterns:** Frequency of use, Types of OTC drugs used (e.g., analgesics, antipyretics, antihistamines), reasons for use (e.g., headache, cold, fever).
- **Awareness and Knowledge:** (Knowledge about dosage, side effects, and drug interactions, awareness of risks of self-medication).
- **Attitude and Practice:** Source of information (pharmacist, internet, friends), Reading of drug labels, Consultation with healthcare professionals (Taber *et al.*, 2021).

Validation of Questionnaire

The questionnaire was reviewed by subject experts (pharmacy/ medical professionals) for content validity. Necessary

modifications were made based on feedback. Reliability was assessed using Cronbach's alpha (≥0.7 acceptable) as per the World Health Organization (2021).

Data Collection Procedure

Permission was obtained from the college authorities. Participants were informed about the purpose of the study. Informed consent was obtained before participation. Questionnaires were distributed either online (Google Forms). Adequate time was provided to complete the questionnaire.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee of Mohammad Ali Jauhar University. Participation was voluntary. Confidentiality and anonymity of participants were maintained. No personal identifiers were collected.

Data Analysis

Data were entered into Microsoft Excel / SPSS (Statistical Package for the Social Sciences)

- **Descriptive statistics:** Frequency, Percentage, Mean and standard deviation.
- **Inferential statistics:** The chi-square test was applied to determine the association between categorical variables. A p-value <0.05 was considered statistically significant.

RESULTS

Demographic Detail

A total of 101 responses were collected in the survey. The age-wise distribution of participants showed that the majority belonged to the 21-23 years age group (38.6%), followed by 18-20 years (35.6%), 24-26 years (17.8%), and above 26 years (7.9%) (Table 1).

The mean age of the participants was calculated using the weighted average method by taking the midpoint of each age group. The overall mean age was found to be 21.84 years (approximately 22 years). This indicates that most respondents were young adults, with a higher concentration in the 21-23-year age group.

OTC Drug Usage Patterns

The results indicate that the majority of participants (62.4%) demonstrated moderate practice regarding OTC drug use. Only 27.7% exhibited good practice, while 9.9% showed poor practice. This suggests that although OTC drugs are commonly used, safe and appropriate practices are not consistently followed by all participants (Table 2).

Awareness and Knowledge Section

The awareness assessment revealed that a vast majority of participants (97%) had good knowledge regarding OTC drug use (Figure 1). Only 3% showed moderate awareness, and none of the participants fell into the poor awareness category. This indicates a high level of knowledge among respondents about the safe use of OTC medications (Table 3).

Attitude and Practice Section

The findings show that 66.3% of participants had a negative attitude toward OTC drug use, while 20.8% demonstrated a moderate attitude, and only 12.9% exhibited a positive attitude (Figures 2-5). This indicates that despite having good awareness, many participants hold inappropriate perceptions or beliefs regarding OTC drug safety and usage (Table 4).

Mean and Standard Deviation of KAP Scores

The mean awareness score (5.79±0.47) indicates a high level of knowledge among participants. However, the mean practice score (2.18 ±0.61) reflects only moderate adherence to safe practices. The mean attitude score (1.10±1.03) suggests generally poor attitudes toward OTC drug use. These findings highlight a gap between knowledge and behavior (Table 5).

Association between Awareness and Practice

The Chi-square test was applied to determine the association between awareness and practice regarding OTC drug use. The results showed no statistically significant association between awareness and practice (χ^2=0.35, p=0.839, p>0.05). This indicates

Table 1: Demographic Details.

Age	Frequency	Percentage
18-20	36	(35.6%)
21-23	39	(38.6%)
24-26	18	(17.8%)
>26	8	(7.9%)
Gender		
Male	56	(55.4%)
Female	44	(43.6%)
Occupation		
Student	85	(84.2%)
Teacher	4	(4%)
Non-teaching	8	(7.9%)
Labour	4	(4%)
Area		
Rural	53	(52.5%)
Urban	48	(47.5%)
Year of Study		
1st	31	(30.7%)
2nd	14	(13.9%)
3rd	10	(9.9%)
4th	46	(45.5%)

Table 2: Practice Question.

Si. No.	Practice Question	Response	Frequency (N)	Percentage (%)
1.	Do you use OTC (Non-prescription) medicines?	Yes	84	(83.2%)
		No	17	(16.8%)
2.	How often do you use OTC drugs?	Rarely	68	(67.3%)
		Sometimes	30	(29.7%)
		Frequently	3	(3%)
3.	For which conditions do you use OTC drugs?	Fever	50	(49.5%)
		Cold and cough	29	(28.7%)
		Acidity	7	(6.9%)
		Others	15	(14.9%)
4.	Which OTC drugs do you commonly use?	Painkillers	65	(64.4%)
		Antacids	4	(4%)
		Cough syrup	18	(17.8%)
		Vitamins/Supplements	6	(5.9%)
		Others	8	(7.9%)
5.	What is your main reason for using OTC drugs?	Convenience	40	(39.6%)
		Cost-saving	10	(9.9%)
		Previous experience	21	(20.8%)
		Avoid doctor visit	30	(29.7%)
6.	Who influences your decision to use OTC drugs?	Pharmacists	44	(43.6%)
		Friends/Family	30	(29.7%)
		Internet/social media	5	(5%)
		Self - decision	22	(21.8%)

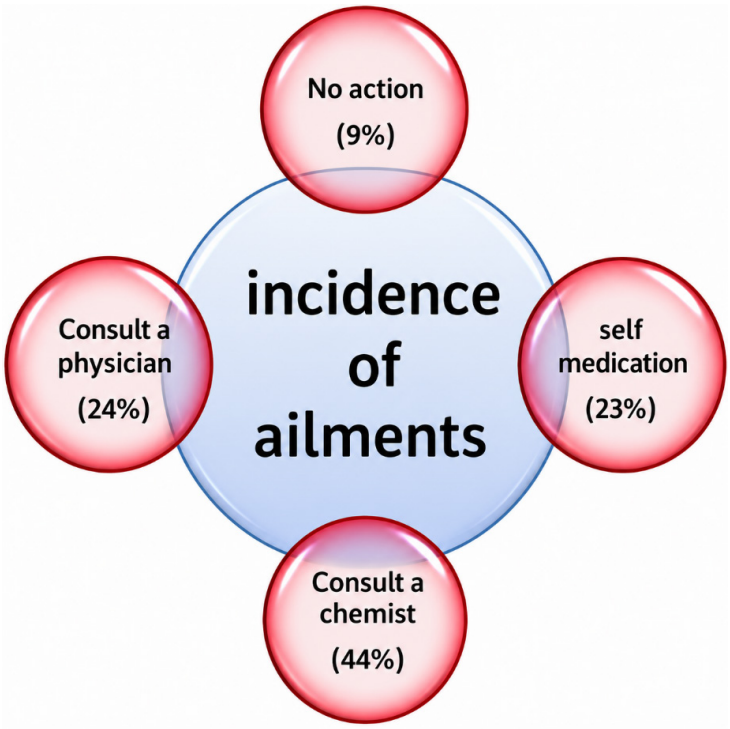

Figure 1: OTC Drug Process.

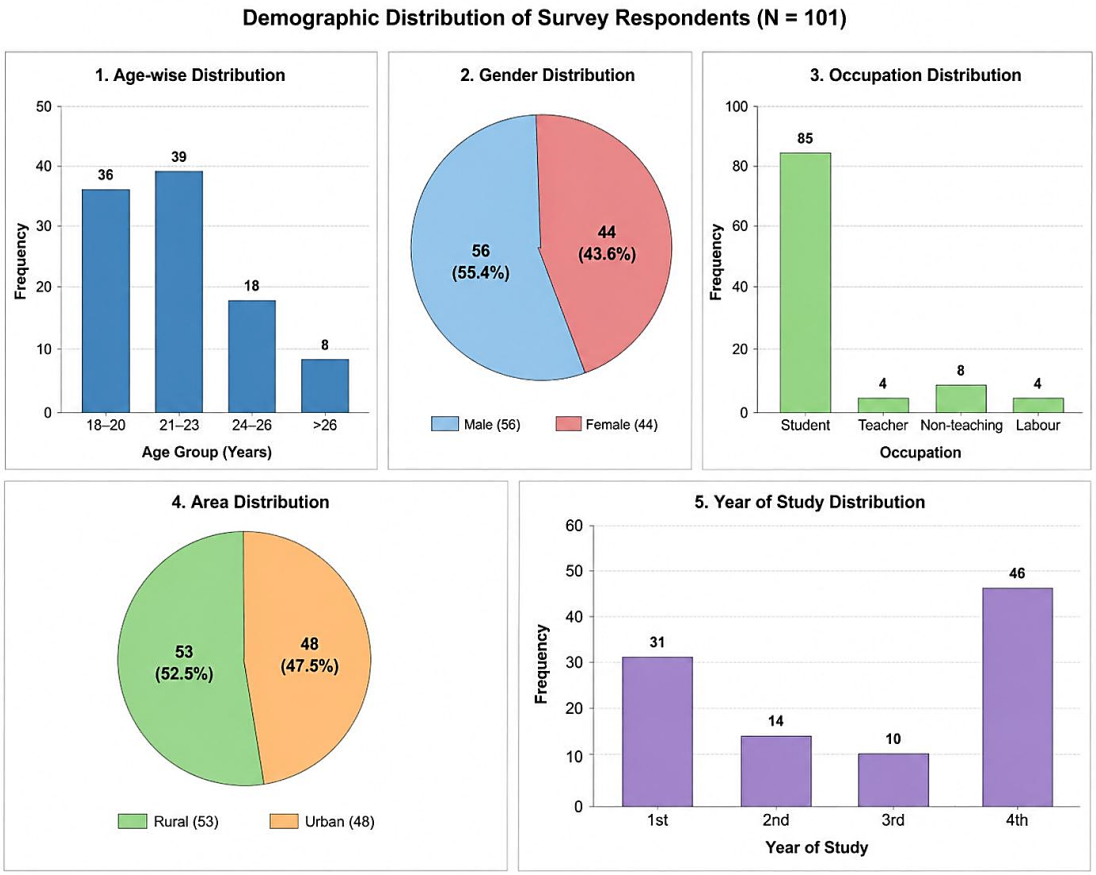

Figure 2: Demographic Details (*n*=101).

Table 3: **Awareness Question.**

Sl. No.	Awareness Question	Yes N (%)	No (%)
1.	Are you aware that OTC drugs can cause side effects?	(86.1%)	(13.9%)
2.	Do you read the label/instructions before use?	(97%)	(3%)
3.	Do you check expiry date before using medicine?	(100%)	
4.	Do you follow recommended dosage?	(99%)	
5.	Do you know that overuse of painkillers can be harmful?	(99%)	
6.	Do you consult a doctor if symptoms persist?	(98%)	(2%)

Table 4: **Attitude Question.**

Sl. No.	Attitude Question	Yes N (%)	No N (%)
1.	Do you think OTC drugs are completely safe?	(40.6%)	(59.4%)
2.	Do you prefer OTC drugs over visiting a doctor?	(66.3%)	(33.7%)
3.	Have you ever experienced side effects?	(67.3%)	(32.7%)
4.	Would you recommend OTC drugs to friends?	(82.2%)	(17.8%)

Table 5: **Mean and Standard Deviation of KAP Scores (*n*=101).**

Parameter	Maximum Score	Mean Score	Standard Deviation
Awareness	6	5.79	0.47
Practice	4	2.18	0.61
Attitude	3	1.10	1.03

Table 6: Cross-tabulation of Awareness and Practice (*n*=101).

Awareness Level	Good Practice	Moderate Practice	Poor Practice	Total
Good	27	61	10	98
Moderate	1	2	0	3
Poor	0	0	0	0
Total	28	63	10	101

Chi-square (χ^2) value=0.35, *p*-value=0.839.

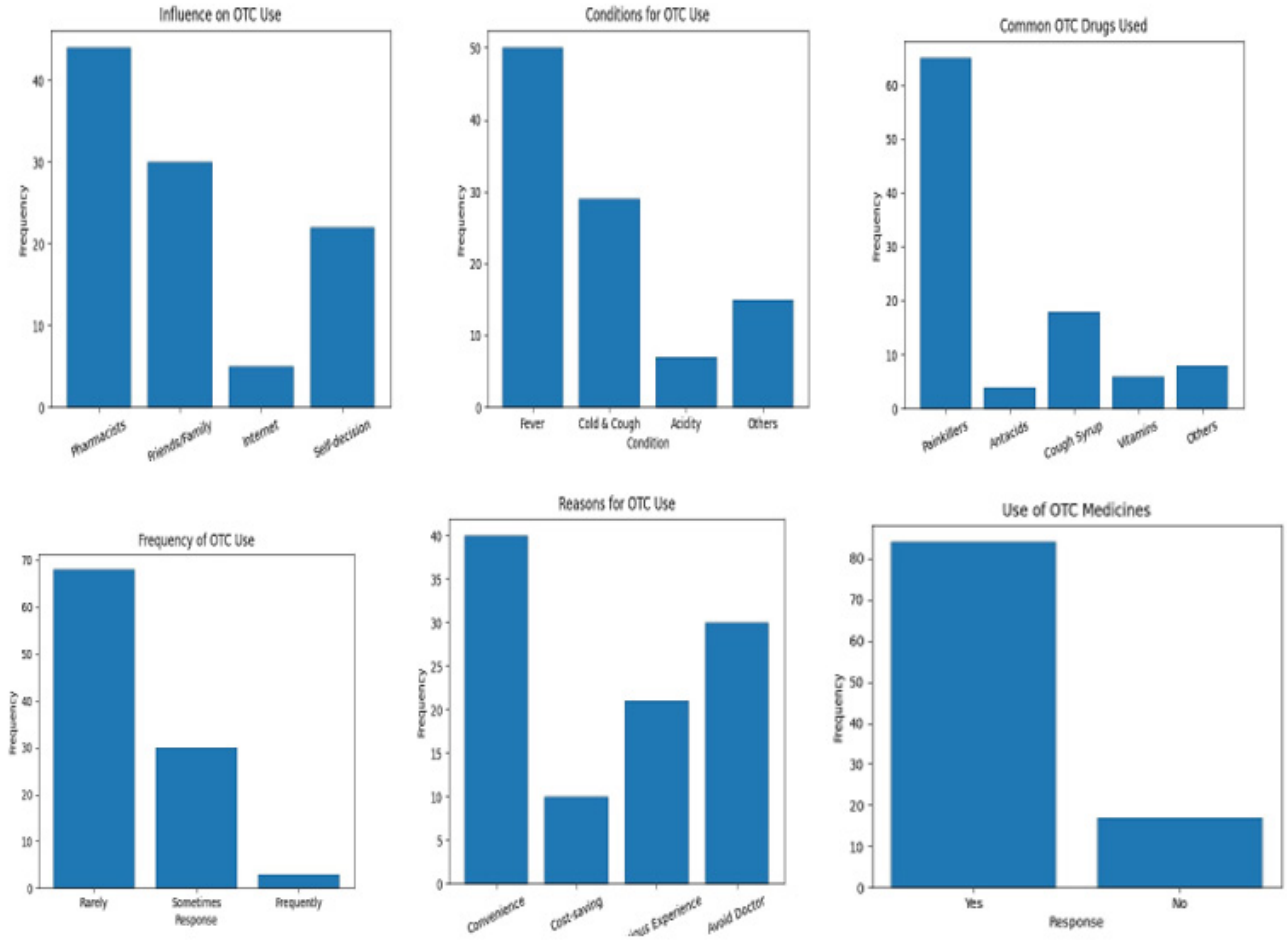

Figure 3: OTC Usage and Pattern of 101 Participants.

that although participants had good awareness, it did not significantly influence their practice behavior (Table 6).

DISCUSSION

The present study assessed the knowledge, attitude, and practice regarding the use of Over-the-Counter (OTC) drugs among 101 participants. The findings revealed that a vast majority of respondents (97%) had good awareness about OTC medications, including knowledge of side effects, dosage, and precautions. Despite this high level of awareness, the practice of OTC drug use was found to be only moderate, with 62.4% of participants falling into the moderate category and only 27.7% demonstrating good practice. This indicates that participants do not consistently translate their knowledge into safe usage behavior. In addition, a significant proportion of participants (66.3%) exhibited a negative attitude toward OTC drug use, reflecting misconceptions regarding safety and a preference for self-medication. The mean scores further supported these findings, with high awareness (5.79±0.47), moderate practice (2.18±0.61), and low attitude scores (1.10±1.03). Furthermore, the Chi-square test showed no statistically significant association between awareness and practice (p=0.839), suggesting that knowledge alone does not significantly influence behavior. The frequent use of OTC drugs for common conditions such as fever, headache, and cold appears to be driven by convenience and prior experience. Overall, the study highlights a clear gap between knowledge and practice, emphasizing the need for educational interventions to promote safe and rational use of OTC medications.

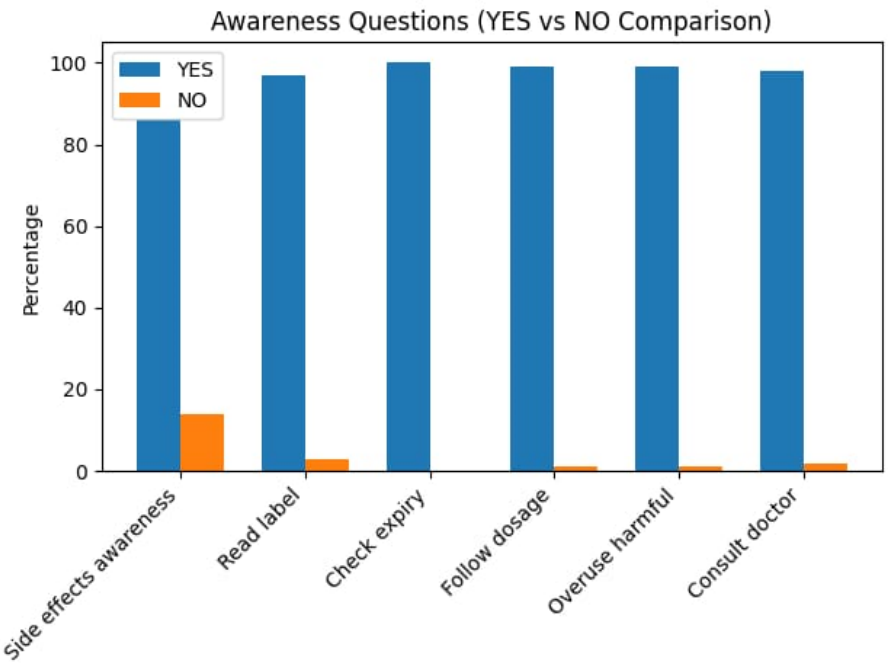

Figure 4: Awareness Responses of 101 Participants.

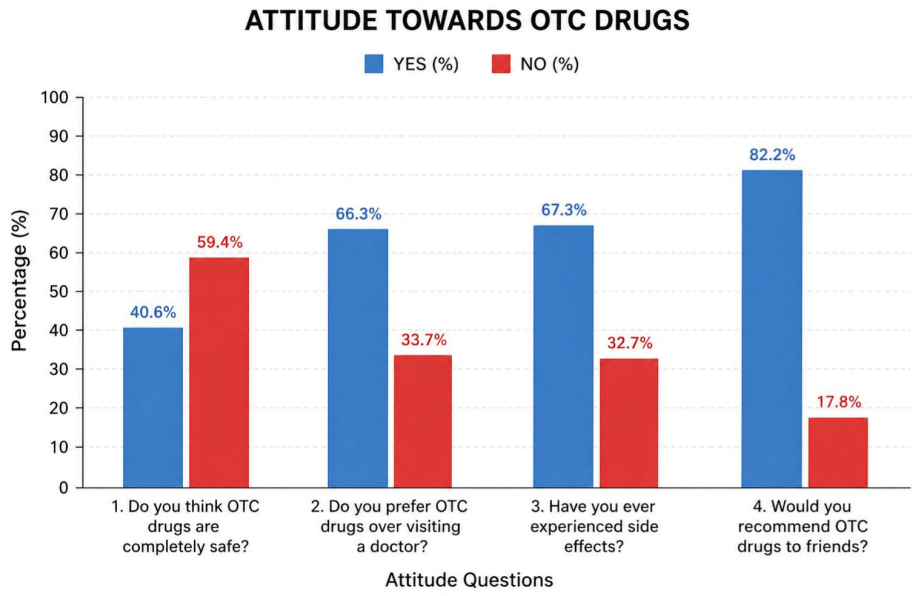

Figure 5: Attitude responses of 101 participants.

CONCLUSION

The present study concludes that participants demonstrated a high level of awareness regarding Over-the-Counter (OTC) drugs, with the majority having adequate knowledge about their safe use. However, this knowledge was not effectively translated into practice, as most participants exhibited only moderate usage behavior. Additionally, a large proportion showed a negative attitude toward OTC drug use, indicating misconceptions and a tendency toward self-medication. The absence of a statistically significant association between awareness and practice (p=0.839) further confirms that knowledge alone does not influence behavior. These findings highlight a clear gap between awareness and actual practice. Therefore, there is a need for targeted educational interventions and awareness programs to promote rational and safe use of OTC medications and to encourage.

ACKNOWLEDGEMENT

None.

ABBREVIATIONS

OTC: Over-the-counter; **KAP:** Knowledge, Attitude, and Practice; **SPSS:** Statistical Package for the Social Sciences.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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