

Influence of Educational Streams on Over the Counter (OTC) Drugs: Purchasing and Usage Behaviour

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DOI: <https://doi.org/10.51583/IJLTEMAS.2025.140600080>

Abstract: An over the counter (OTC) drug can be purchased without any prescription. These drugs become popular due to their easy access and cost effectiveness and the self-medication practice is increasing day by day, especially among youth. People are taking many drugs without consultation or prescription for headache, cold & cough, pain etc. There are so many factors to study that what the consumers think while buying these OTC drugs. This paper investigates especially the effect of academic disciplines of students on the purchase and usage behaviour regarding over the counter (OTC) drugs. The study will assess a range of factors such as awareness level, frequency of use, sources of information and purchasing platforms with respect to the demographic and academic diversities. It explores the impact of academic backgrounds on self-medication practices, reliability on healthcare professionals, digital and social media. The study indicates the need to administered awareness programs and strategic initiatives to promote the safe use of OTC medications. Additionally, the study identifies behavioral differences in packaging engagement and purchasing channels across academic streams, contributing to safer usage of OTC drugs and supporting targeted awareness initiatives

Keywords: OTC drugs, safe medication, academic disciplines, purchase behaviour

I. Introduction

Over-the-counter (OTC) medications have become an essential part of today's healthcare system, making it easy to obtain treatment without a doctor's prescription. The reasons for their popularity include their affordability, easy availability, and the growing trend of self-medication. The demand for OTC medications becomes particularly significant because people want quick and cost-effective solutions for their health issues. However, despite the many benefits, the use of these types of medications without proper information about them can lead to serious health risks such as incorrect diagnoses, adverse effects, or unsafe combinations. This raises several important questions—how aware are people, how and on what basis do they purchase these medicines, and how strictly are regulations being followed? Therefore, it becomes crucial to understand why people are using these medications—whether they are policymakers, doctors, or business-related individuals. Consumers make their purchasing decisions based on factors like prior experience, friends' advice, advertising, and ease of availability. Several studies have been conducted regarding the use of OTC medications. This study investigates the impact of various academic streams—arts, commerce, and science—on students' purchase and usage habits of OTC (over-the-counter) medications. By analysing key factors such as awareness levels, frequency of use, preferred sources of information, and purchasing behaviour, this research attempts to understand how academic background shapes self-medication trends. It is quite perceivable that academic experiences of any individual can affect the personal choice to acquire knowledge about these drugs. The level of academic experience can help to determine the trustworthiness of the existing medical resources including healthcare professionals, digital platforms, or social media. Additionally, the trust and accessibility of medical advice through pharmacy online stores and supermarkets etc. many a times determine the personal medication preferences of individuals.

We hypothesize that academic background not only influences awareness and usage but also shapes how students perceive packaging instructions, source reliability, and pharmacy trust levels. The interplay between educational experience and digital engagement forms a critical dimension in modern self-medication behaviour.

Despite the widespread availability of OTC drugs, limited research has examined how educational environments shape consumer choices and health behaviour—particularly in the Indian context. The present study aims to highlight the behavioural tendencies of students by exploring their experiences regarding use of OTC medications.

II. Literature Review

Here we explore some significant studies spanning through last decade, which underline existing levels of consumer awareness, behavioural aspects, and regulatory implications in force about OTC drugs.

Early Studies on Consumer Awareness (2014-2015)

A considerable knowledge gap was noticed by Lad and Berad (2014) regarding OTC medications, and they highlighted that serious health risks are arising among people due to abuse of OTC drugs mainly due to the lack of awareness. Adhikary et al. (2014) took up almost similar kind of study and claimed that safe drug consumption, particularly OTC medications, depends on the educational level of the consumers. Syed et al. (2014) undertook comparative studies among students of medical and non-medical streams. He found notable difference between their knowledge levels regarding OTC drugs. It was noted that the medical students were more aware of the health risks associated with OTC medications, as expected, while the others frequently consumed these medications without adequate information. Singh et al. (2015) did a comparative study of rural and urban consumers regarding self-medication practices. He, probably observing the adverse trends suggested immediate public awareness initiatives. Contrary to what we may believe, he pointed out that the use of over-the-counter medications by urban people is more frequent. However, this may be attributed more to easy access. In case of rural people, the case is different, i.e. they have to rely on OTC drugs due to poor healthcare services.

Behavioural and Attitudinal Shifts (2016-2018)

Pujari et al. (2016) compared the usage of prescribed and unprescribed OTC drugs to find that use of OTC medications is due to their easy availability. Alarming, these were being used without exploring the potential risks associated with them. Mirza and Ganguly (2016) studied self-medication in households and brought forward various issues and risks about the use of drugs without prescriptions. They highlighted that OTC drugs were being misused without adequate instructions. In study by Cirstea et al. (2017), it was examined that branding, price, and previous experiences are the key factors influencing consumer choices for self-medication. Srivastava and Wagh (2018) also examined consumer perceptions and experiences regarding OTC drugs in Indian markets. Their study highlighted the economic and cultural impacts of this behaviour, like how financial limitations, advertising, and consumer trust in drug brands influence their purchasing trends.

Expanding Perspectives on Safety and Regulation (2019-2021)

Sehgal and Mittal (2019) linked purchase decision with consumer attitude. They provided valuable insights into OTC drug consumer behavior and said that the consumers with better information are more likely to make careful and safe decisions. Touching the other aspect, the study told the importance of clear and transparent product labels. Habash and Al-Dmour (2020) made a study on various factors affecting the purpose of buying OTC medications and also emphasised the safety considerations. The study recommended the urgent need for proper regulations and guidelines for OTC drug consumers. Shivakumar and Jintu (2021) focussed their study on pharmacists to gain insights about their knowledge, attitudes, and practices regarding OTC drugs. The study pointed out many gaps in professional training they are acquiring, and it was emphatically recommended to improve their education and awareness to ensure responsible drug dispensing by them.

Recent Developments and Emerging Trends (2022-2024)

Ray et al. (2022) analyzed global perspectives on self-medication during the COVID-19 pandemic. The worldwide ambiguity and restricted healthcare facilities resulting in the increased in self-medication. The study suggested the need for robust safety measures. Narang et al. (2023) explored safety and economic aspects in the Indian market. They advised stricter regulatory controls to alleviate potential risks. Daxini and Sheikh (2023) conducted a comparative study on buying behavior among students regarding OTC drugs. It was noted that younger consumers often depend on digital resources for medication information. Dhingra et al. (2024) focused on antibiotics used as self-medication, highlighting the risks associated with misuse. The study pointed out that the increasing resistance to antibiotic drugs is due to uninformed self-medication. The study underpinned the need for awareness campaigns and rigorous policy enforcement. Understanding these developments can inform more effective policies and interventions to promote safe and responsible OTC drug consumption.

III. Objectives of The Study

- To analyze the impact of academic discipline of students on awareness and buying behavior of OTC drugs.
- To identify key factors influencing self-medication practices.
- To examine preferences of students for purchasing channels.
- To investigate students' engagement with packaging details—such as instructions and warnings—as a behavioral marker of responsible medication practices.
- To analyze the influence of academic stream on preferred purchasing platforms and trust in digital versus traditional sources.

IV. Research Methodology

This study utilizes a quantitative research approach with a survey-based cross-sectional design to examine students' awareness and purchasing behaviour regarding OTC drugs. The study was conducted among undergraduate and postgraduate students in

Panipat district of Haryana, India, providing insights into urban and rural consumption patterns across diverse academic disciplines (Arts, Commerce and Science). A stratified sampling method ensures representation across Arts, Commerce, and Science streams, focusing on self-medication practices and information sources. The data was collected using a structured questionnaire, exploring knowledge levels, frequency of use, preferred sources of healthcare information, and purchasing channels. Descriptive statistics summarize trends, while Chi-Square tests analyse relationships between educational background and reliance on various sources.

V. Results and Discussion

Demographic Variations of Online Consumers

The demographic data (Table 1) provides valuable insights into the composition of the surveyed group. Most participants (76.7%) fall within the age range of 18-21 years, followed by 19.9% in the 22-25 age group, while only a small percentage (3.3%) are above 25 years. In terms of gender distribution, females constitute a sizeable portion (70.4%) of the group, whereas males make up 29.6%. Regarding academic streams, commerce is the most represented field, accounting for 48.8% of respondents, followed by science at 38.0%, and arts at 13.3%.

Table 1 Demographic Variations of Online Consumers

Demographic Variable	Category	Frequency	Percentage
Age	18-21	277	76.7%
	22-25	72	19.9%
	25-28	9	2.5%
	Above 28	3	0.8%
	Total	361	
Gender	Female	254	70.4%
	Male	107	29.6%
	Total	361	
Stream	Arts	48	13.3%
	Commerce	176	48.8%
	Science	137	38.0%
	Total	361	
Residential Status	Rural	140	38.8%
	Urban	221	61.2%
	Total	361	
Level of Education	Postgraduate	97	26.9%
	Undergraduate	264	73.1%
	Total	361	

Residential status indicates that a larger proportion of individuals (61.2%) reside in urban areas, while 38.8% are from rural backgrounds. The level of education data suggests that the majority (73.1%) are undergraduate students, whereas 26.9% have pursued postgraduate studies. These findings reflect the youthful, academically diverse, and urban-skewed nature of the surveyed population.

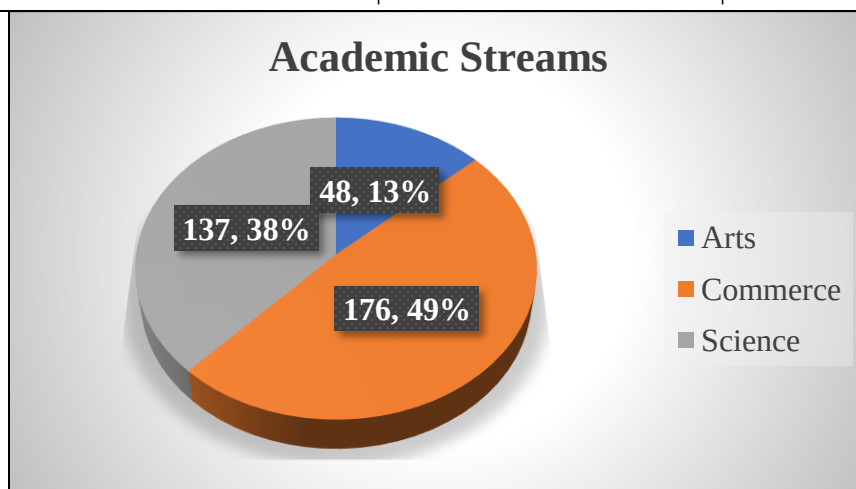


Figure 1 Academic Streams of Respondents

Awareness About Over the Counter (OTC) Drugs

The data on stream-wise awareness (Table 2) reveals a clear trend: science students exhibit the highest level of awareness, with 84% responding affirmatively, followed closely by commerce students at 81%. Arts students show slightly lower awareness levels, with 75% indicating familiarity. Overall, across all streams, 81% of respondents demonstrated awareness, while 19% reported a lack of awareness. The Pearson Chi-Square test, which evaluates the association between academic stream and awareness levels, yields a value of 1.89 with 2 degrees of freedom.

Table 2 Awareness About Over the Counter (OTC) Drugs

Stream/Awareness	No	Yes	Total
Arts	12	36	48
	25%	75%	
Commerce	33	143	176
	19%	81%	
Science	22	115	137
	16%	84%	
Total	67	294	361
	19%	81%	
Pearson Chi-Square	Value	df	Asymptotic Sig. (2-tailed)
	1.89	2	.389

The asymptotic significance (p-value) of .389 suggests that the relationship between stream and awareness is not statistically significant at conventional thresholds. This implies that variations in awareness levels across streams may not be strongly influenced by academic background alone but could be affected by other factors such as access to information, individual interest, or external influences.

While the study focuses on awareness and purchasing behaviour, future research could explore compliance with dosage guidance as a critical dimension of responsible self-medication.

Learning about OTC drugs

Table 3 First Learning about OTC drugs

Stream / Source	Doctor / Pharmacy	Friends / Family	Print Media	Social Media	Television / Radio	Total
Arts	10 (20.8%)	12 (25.0%)	3 (6.3%)	20 (41.7%)	3 (6.3%)	48

Commerce	22 (12.5%)	29 (16.5%)	4 (2.3%)	96 (54.5%)	25 (14.2%)	176
Science	18 (13.1%)	49 (35.8%)	3 (2.2%)	60 (43.8%)	7 (5.1%)	137
Total	50 (13.9%)	90 (24.9%)	10 (2.8%)	176 (48.8%)	35 (9.7%)	361

The data on sources of information (Table 3) across different academic streams reveals notable variations. Social media emerges as the most influential source overall, with 48.8% of respondents identifying it as their primary medium. This trend is particularly pronounced among commerce students, where 54.5% rely on social media, followed by science students at 43.8%, and arts students at 41.7%. Friends and family also play a significant role, with 24.9% of respondents citing them as a key source, with science students exhibiting the highest reliance at 35.8%, compared to arts (25%) and commerce (16.5%). Traditional print media ranks the lowest, with only 2.8% of respondents acknowledging it as their source. Meanwhile, doctors and pharmacies contribute information to 13.9% of respondents, with arts students showing the highest reliance (20.8%). Television and radio are somewhat less influential, with only 9.7% of respondents considering them as primary sources.

The Pearson Chi-Square test ($\chi^2 = 25.54$, $df = 8$, $p = .001$) indicates a statistically significant association between academic stream and preferred source of information. This suggests that students in different fields exhibit distinct patterns of information consumption, likely influenced by their academic environment and personal engagement with different media. Commerce students, for instance, show a strong preference for social media, while science students tend to rely more on friends and family. This differentiation underscores the impact of educational backgrounds on information-seeking behaviors.

Purpose of mostly used OTC drugs

The data on medical treatment Table 4 preferences across different academic streams highlights significant trends. Pain relief emerges as the most common reason for medication use, accounting for 47.1% of respondents, with commerce students showing the highest reliance at 52.3%, followed by arts students at 50.0% and science students at 39.4%.

Table 4 Purpose of mostly used OTC drugs.

Condition	Arts(n = 48)	%	Commerce(n = 176)	%	Science(n = 137)	%	Total(n = 361)	%
Acidity	0	0.00%	3	1.70%	2	1.50%	5	1.40%
Allergy relief	1	2.10%	3	1.70%	0	0.00%	4	1.10%
Allergy relief, Skin treat.	1	2.10%	0	0.00%	0	0.00%	1	0.30%
Cold and cough treatment	10	20.80%	30	17.00%	30	21.90%	70	19.40%
Constipation	0	0.00%	1	0.60%	1	0.70%	2	0.60%
Pain relief	24	50.00%	92	52.30%	54	39.40%	170	47.10%
Pain relief, Acidity	0	0.00%	1	0.60%	2	1.50%	3	0.80%
Pain relief, Allergy rel.	0	0.00%	1	0.60%	0	0.00%	1	0.30%
Pain relief, Cold & cough	9	18.80%	32	18.20%	42	30.70%	83	23.00%
Pain relief, Skin treat.	0	0.00%	1	0.60%	2	1.50%	3	0.80%
Pain relief, Supplements	0	0.00%	2	1.10%	0	0.00%	2	0.60%
Skin treatment	2	4.20%	5	2.80%	0	0.00%	7	1.90%
Supplementation	1	2.10%	5	2.80%	4	2.90%	10	2.80%
Total	48	100%	176	100%	137	100%	361	100%

Cold and cough treatment is another prominent category, making up 19.4% of total responses, with science students having the highest proportion (21.9%), followed by arts (20.8%) and commerce (17.0%). Supplementation and skin treatment are relatively minor concerns, each accounting for 2.8% and 1.9% of responses, respectively.

Interestingly, combined treatments—for example, pain relief with cold and cough treatment (23.0%)—suggest a notable overlap in medication usage patterns, particularly among science students (30.7%). The Pearson Chi-Square test ($\chi^2 = 29.87$, $df = 24$, $p = .189$) indicates that the association between academic stream and treatment preference is not statistically significant. This suggests that medication choices may be influenced more by individual health needs rather than academic background. However,

the variations observed between streams still provide useful insights into common health concerns among different student groups.

Frequency of use of OTC drugs

The data on frequency of use across different academic streams (Table 5) highlights distinct consumption patterns. Most respondents (62.0%) reported using the product or service rarely, with commerce students showing the highest proportion (63.6%), followed closely by science (60.6%) and arts (60.4%). Occasional use accounts for 19.1% of total responses, with science students demonstrating the highest occasional usage (28.5%), compared to commerce (14.2%) and arts (10.4%). Weekly use remains low across all streams, with only 5.5% of respondents engaging at this frequency. Daily usage is similarly limited, at just 5.3%, with arts students exhibiting the highest percentage (16.7%), while commerce and science students report significantly lower daily consumption (5.7% and 0.7%, respectively).

Table 5 Frequency of use of OTC drugs

Stream/Frequency	Daily	Monthly	Occasion	Rarely	Weekly	Total
Arts	8	1	5	29	5	48
	16.7%	2.1%	10.4%	60.4%	10.4%	
Commerce	10	20	25	112	9	176
	5.7%	11.4%	14.2%	63.6%	5.1%	
Science	1	8	39	83	6	137
	0.7%	5.8%	28.5%	60.6%	4.4%	
Total	19	29	69	224	20	361
	5.3%	8.0%	19.1%	62.0%	5.5%	
Pearson Chi-Square		Value	df	Asymptotic Sig. (2-tailed)		
		35.61	8	.000		

The Pearson Chi-Square test ($\chi^2 = 35.61$, $df = 8$, $p = .000$) indicates a statistically significant association between academic stream and frequency of use. This suggests that students in different streams have distinct behavioral tendencies when it comes to usage frequency. Science students, for example, are more likely to use the product or service occasionally, while arts students have the highest daily engagement. These variations may be attributed to differences in academic workload, lifestyle, or accessibility, shaping consumption habits in unique ways.

Purchasing Preferences across Academic Streams

The data on purchasing preferences across academic streams (Table 6) highlights a strong preference for pharmacy and medical stores as the primary source of purchases, with 95.6% of respondents opting for this channel. Science students exhibit the highest reliance on pharmacies, with an overwhelming 99.3% purchasing from these outlets, followed closely by arts students at 95.8%, and commerce students at 92.6%. Online stores account for only 3.0% of total purchases, with commerce students showing the highest engagement at 4.5%, arts students at 4.2%, and science students at just 0.7%. Supermarkets play a minimal role, contributing only 1.4% of purchases, with commerce students being the sole group making use of this option (2.8%).

Table 6 Where do you usually purchase OTC drugs from

Stream/Store	Online stores	Pharmacy/Medical Store	Supermarket	Total
Arts	2	46	0	48
	4.2%	95.8%	0%	
Commerce	8	163	5	176
	4.5%	92.6%	2.8%	
Science	1	136	0	137
	0.7%	99.3%	0%	
Total	11	345	5	361

	3.0%	95.6%	1.4%	
Pearson Chi-Square	Value	df	Asymptotic Sig. (2-tailed)	
	9.52	4	.049	

The Pearson Chi-Square test ($\chi^2 = 9.52$, $df = 4$, $p = .049$) indicates a statistically significant association between academic stream and store preference. This suggests that students' field of study may influence their purchasing behavior, with science students exhibiting a particularly strong preference for medical stores. The minimal engagement with online stores and supermarkets highlights a dominant reliance on traditional pharmacy outlets, possibly due to trust in professional guidance, availability of medical expertise, or ease of access within academic environments. These trends provide valuable insights into consumption patterns and preferences within different educational backgrounds.

Instructions and Warnings on the Packaging

The data illustrates Table 7 tendency of read instructions and warning on packaging across different academic streams. Overall, 46.3% of respondents reported "Always," with arts students exhibiting the highest percentage at 54.2%, followed by commerce (45.5%) and science (44.5%). The "Sometimes" category accounts for 19.1% of responses, with commerce and science students showing similar levels (20.5% and 20.4%, respectively), while arts students display a lower proportion (10.4%). "Often" engagement is reported by 13.6% of respondents, with science students slightly ahead (15.3%) compared to arts (14.6%) and commerce (11.9%). Meanwhile, rare accounts for 11.4% of total responses, with commerce students (11.4%) and science students (11.7%) showing slightly higher percentages than arts students (10.4%). "Never" is relatively low across all streams, with an overall percentage of 9.7%, ranging from 10.8% in commerce to 8.0% in science.

Table 7 Read the instructions and warnings on the packaging.

Stream	Always	Never	Often	Rarely	Sometime	Total
Arts	26	5	7	5	5	48
	54.2%	10.4%	14.6%	10.4%	10.4%	
Commerce	80	19	21	20	36	176
	45.5%	10.8%	11.9%	11.4%	20.5%	
Science	61	11	21	16	28	137
	44.5%	8.0%	15.3%	11.7%	20.4%	
Total	167	35	49	41	69	361
	46.3%	9.7%	13.6%	11.4%	19.1%	
Pearson Chi-Square		Value	df	Asymptotic Sig. (2-tailed)		
		4.34	8	.825		

The Pearson Chi-Square test ($\chi^2 = 4.34$, $df = 8$, $p = .825$) suggests that the association between academic stream and frequency of reading instructions and warnings on packaging is not statistically significant. This implies that academic background may not be a determining factor in engagement levels, and variations observed across streams could be attributed to personal preferences, external influences, or individual circumstances rather than stream-specific tendencies. The distribution highlights general behavioral patterns while underscoring the need to consider other influencing factors beyond academic specialization.

VI. Conclusion

In conclusion, this study provides a comprehensive analysis of how students of different backgrounds approach the purchase and use of OTC drugs. The findings showed a notable difference in awareness levels, frequency of consumption, and the sources they prefer for information. Science students exhibit the highest level of awareness and rely on friends and family for information, while Commerce students show a strong preference for social media. Arts students showed a more balanced way of using OTC medicines. They trust both social media and traditional sources like doctors and pharmacies. The study shows that to make self-medication safer and increase public awareness, policymakers, doctors, and teachers need to take targeted actions. By understanding how students behave when using these medicines, these groups can create better plans that help people use OTC drugs safely and wisely. This will also support better health and following medical rules. The research also found that the most common reason students used these medicines was to relieve pain—with commerce students leading in this use. Treating cold and cough was another common reason, especially among science students. There were also differences in where students from different streams preferred to buy the medicines. Most of them chose pharmacies and medical stores as their main source.

Furthermore, students' engagement with drug packaging varies across disciplines—indicating the need for tailored education on medication literacy. The statistically significant associations between academic stream and frequency of use, purchasing behaviour, and source preference highlight the urgency for curriculum-integrated safety modules and public health interventions. Overall, this study gives useful insights into how students use OTC medicines and shows why strong rules and guidelines are needed to help people use them in a safe and responsible way.

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