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Original Research Article

Knowledge, attitude and practise of self-medication among MBBS and nursing undergraduate students: a comparative cross-sectional study

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ABSTRACT

Background: Self-medication is a common practise among health care students. But comparative studies evaluating knowledge, attitude and practises (KAP) between different academic streams are limited. Hence, the presence study aimed to compare the prevalence and existing self-medication behaviour between medical and nursing students.
Methods: A 3- month comparative cross-sectional study was conducted across 213 students (107 MBBS and 105 Nursing). Self-administered digital questionnaire was utilized to collect data regarding socio- demographic details and KAP domains. SPSS version 26 was utilized to analyse data, employing Chi Square and Student T test, with $p<0.05$ considered significant.
Results: The overall prevalence of SM was found to be 81.60%, with no significant difference between the two academic streams (MBBS 82.24% vs Nursing 80.95%; p=0.81). MBBS students demonstrated significantly higher knowledge (81.31% vs 55.24%; p<0.001) and positive attitude (85.05% vs 69.52%; p=0.011) as compared to nursing students. However, the adequate practises were low across both the groups (MBBS: 19.63% Nursing: 14.29%; p=0.394), highlighting a notable knowledge- practise gap. Although headache was the most common indication reported in both the streams, MBBS students significantly self-medicated for fever and respiratory problems using their academic knowledge and evidence-based databases. On the contrary, nursing students self-medicated majorly for gastro-intestinal problems driven by financial constraints, easy availability of medicines without prescription and consultation with pharmacists or old prescriptions. Digital platforms were extensively used by both the groups. Unsafe practises such as prescription sharing, ignoring package instructions, failure to check expiry dates and premature cessation of treatment were more prevalent among nursing students.
Conclusions: Self-medication practices were prevalent in both the academic streams. This warrants need of incorporating educational programs related to safe self-medication practices, rational pharmacotherapy, pharmacovigilance and anti-microbial stewardship in undergraduate curricula of healthcare students.

Keywords: Self-medication, Medical students, Nursing students, Knowledge, Attitude, Practices, Questionnaire

INTRODUCTION

According to the World Health Organization, self-medication (SM) is a practise of using medicines to treat self-diagnosed illnesses or symptoms, including the continued or intermittent use of previously prescribed medications for chronic or recurrent health issues.[1] This practise encompasses acquiring medicines without a valid prescription, using medicines recommended by pharmacists, relatives, friends, etc., sharing medications

with acquaintances and utilizing previously stored or left-over medicines without medical consultation.[2]

Across the globe, self- medication has emerged as a significant health care challenge, driven by several cultural, economic and social determinants.[3] Various studies in the past have demonstrated a rising trend in self-medication practices in developing countries as compared to developed countries.[4] The prevalence of SM in India varies widely, ranging from 8.3% to 90%.[5] The patterns of self-medications are influenced by various factors such as age, gender, socioeconomic status, and education level, limited health care facilities, easy accessibility of drugs, cost concerns, undue influence of media and internet and widespread availability of over-the-counter (OTC) drugs.[6]

Although, self-medication is emerging as a common and inevitable modality to minimise health care costs. But it is indeed a double-edged sword with its risks outweighing benefits.[7] Using medicines without approval from a qualified medical professional may mask underlying disease condition. This can delay accurate diagnosis, prolong illness, increase risk of adverse drug reactions and drug interactions.[7] Furthermore, use of incorrect, insufficient or excessive drugs and inadequate dosing may result in wastage of resources, emergence of pathogen resistance and drug dependence.[8] Despite awareness of the potential risks, self-medication practices are highly prevalent among healthcare students. This may be attributed to their medical knowledge, clinical exposure and easy access to drugs.[8] Moreover, factors including academic stress, time constraints and tendency to perceive ailments as insignificant further encourage this practice.[9]

As future health care providers, medical and nursing students' perceptions toward self-medication may differ due to differences in their educational training and clinical exposure, which may influence their clinical practise in future.8 However, comparative KAP studies between these groups are limited. Therefore, this study aims to assess and compare the current levels of knowledge, attitude, and practice regarding self-medication among undergraduate medical and nursing students in a tertiary care setting.

METHODS

Following approval from the Institutional Ethics Committee (RKDMCSRIMS-ECRHS/2025/12/31), a cross-sectional, comparative study was conducted over a period of 3 months (January 2026 to March 2026). The study was carried among undergraduate healthcare students. Medical students were enrolled from R. K. Damani Medical College Shri Ramchandra institute of Medical Sciences, Chhatrapati Sambhaji Nagar while nursing students were from Dr. Hedgewar College of Nursing, Chhatrapati Sambhaji Nagar. Both colleges operate under the same management and share a common tertiary care hospital.

Study sample was calculated using Cochran's formula for cross-sectional studies:[10]

$$n_0 = Z^2p\ (1\text{-}p)/d^2$$

where the prevalence (p) of self-medication was assumed to be 50% (0.5). With Z value of 95% confidence interval and 5% margin of error (d=0.05), initial sample size was calculated as 384. Since the study population was finite (N=400) and initial sample size was more than 5% of the total population, the Finite Population Correction (FPC) was applied: [10,11]

$$(n = n_0 / [1 + (n_0 - 1)/N])$$

As a result, the sample size was calculated as 197. After considering incomplete data and non-response rate of 10%, a final sample size was calculated to be 220. The institutional student database served as the sampling frame of the study. A total of 110 MBBS students (I and II year) and 110 nursing students (I - IV year) of either gender were selected using proportionate stratified random sampling technique. Students who provided informed consent were included while those unwilling to participate or refused to give informed consent were excluded from the study.

Data was collected using a structured and self-administered questionnaire in English, developed following comprehensive review of relevant research.[12-16] The questionnaire comprised of four sections: Socio-demographic characteristics (age, gender, academic stream, year of study, place of residence, type of stay, parent's profession, known medical illness and socio-economic status); Knowledge (8 items); Attitude (8 items); Practice (12 items). The questionnaire was subjected to face validation by a panel of experts comprising of two pharmacologists, two nursing educators and a physician. Before starting the study, the questionnaire was subjected to a pilot study involving 10% (n=22) of the study participants, to assess its clarity and relevance. Data from the pilot study was not included in the main analysis. A robust internal consistency was evidenced by a Cronbach's alpha coefficient of >0.7.

After obtaining consent, the questionnaire was distributed electronically via google forms. Data was compiled through Microsoft Excel, followed by analysis using SPSS version 26. Descriptive statistics (frequencies, percentages and mean ± standard deviation) was used to represent KAP scores. Categorical variables were compared using Chi-square test whereas Student's t-test was employed to compare the mean scores between MBBS and nursing students. A $p<0.05$ was considered statistically significant.

RESULTS

Out of 220 students selected for the study, 8 students (3 MBBS and 5 Nursing) refused to participate and were excluded from the study. Thus, the final sample comprised

of 212 students (107 MBBS and 105 Nursing) accounting for a response rate of 96.4%.

Table 1 summarises the socio-demographic characteristics of both MBBS and nursing students. The mean age of nursing students was found to be higher than that of MBBS students (20.46±1.72 years vs 19.24±1.09). Statistical intergroup comparison revealed a highly significant difference (p<0.0001). Majority of the MBBS students (86.92%) were ≤20 years of age where as nursing students (49.5%) predominantly belonged to age group of 21-23 years. A significant variation was observed in gender-wise distribution between the two academic streams (p<0.0001). In MBBS group, both the genders were relatively balanced with 44.86% male and 55.14% female respondents. In contrast, female students (81.90%) outnumbered male students (18.10%) in the nursing group.

The MBBS group comprised of only first and second year students, with a higher proportion from first year (74.77%) than second year (25.23%). However, nursing students were distributed proportionately across all four years (I year- 25.71%, II year- 26.67%, III year- 22.86% and IV year- 24.76%). Due to the difference in the academic year structures between the two groups, statistical comparison of year-wise distribution was not applicable (N/A). A significantly higher percentage of MBBS students were residents of urban areas in contrast to nursing students (68.22% vs 41.9%; p<0.0001). Furthermore, hostel stay was significantly more prevalent among MBBS students (55.14%) whereas the majority of nursing students were day scholars (81.9%) (p<0.0001). Both the groups were comparable in terms of parents' professional background and history of pre-existing medical condition, with no statistically significant difference evidenced between them (p=0.3893 and p=0.4579 respectively). Nevertheless, socio-economic status differed significantly between the two academic streams (p<0.0001). Majority of MBBS students (67.29%) belonged to middle socio-economic class, while lower socio-economic class was more prevalent among nursing students (53.33%).

In our study, the prevalence of self-medication found to be high in the preceding one year (81.6% overall; 82.24% in MBBS vs 80.95% in nursing). However, the difference between the two academic streams was statistically insignificant (p=0.81) as shown in Table 2.

Table 1: Comparison of socio-demographic characteristics between MBBS and nursing students.

Characteristics		MBBS students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Age (in years)	Mean±SD	19.24±1.09	20.46±1.72	<0.0001***
	≤20	93 (86.92)	47 (44.8)	
	21-23	13 (12.15)	52 (49.5)	
	≥24	1 (0.93)	6 (5.7)	
Gender	Male	48 (44.86)	19 (18.10)	<0.0001***
	Female	59 (55.14)	86 (81.90)	
Year of study	I year	80 (74.77)	27 (25.71)	N/A#
	II year	27 (25.23)	28 (26.67)	
	III year	-	24 (22.86)	
	IV year	-	26 (24.76)	
Residence	Urban	73 (68.22)	44 (41.9)	<0.0001***
	Rural	34 (31.78)	61 (58.1)	
Type of stay	Hostel	59 (55.14)	19 (18.1)	<0.0001***
	Day scholar	48 (44.86)	86 (81.9)	
Parents profession	Medical	13 (12.15)	17 (16.19)	0.3893
	Non-medical	94 (87.85)	88 (83.81)	
History of pre-existing medical condition	Yes	8 (7.48)	11 (10.48)	0.4579
	No	99 (92.52)	94 (89.52)	
Socioeconomic status	Upper	19 (17.76)	3 (2.86)	<0.0001***
	Middle	72 (67.29)	46 (43.81)	
	Lower	16 (14.95)	56 (53.33)	

(p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant); #Not applicable

Table 2: Intergroup comparison of prevalence of self- medication.

	MBBS students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Self-medication practised in last one year	88 (82.24)	85 (80.95)	0.81
Self-medication not practised in last one year	19 (17.76)	20 (19.05)	

(p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant)

The level of knowledge, attitude and practices between MBBS and nursing students is presented in Table 3. Comparatively, MBBS students demonstrated a significantly higher knowledge and constructive attitude towards self-medication than nursing students. 81.31% of MBBS students reported good knowledge as compared to 55.24% of nursing students (p<0.001). Likewise, a significantly positive attitude was more commonly exhibited by MBBS students (85.05%) than nursing students (69.52%) (p=0.011). Despite the differences in knowledge and attitude, the two academic groups did not differ significantly in terms of practices of self-medication (p=0.394). Good practice was exhibited by only 19.63% of MBBS and 14.29% of nursing students while poor practice predominated both the groups (80.37% and 85.71% respectively).

Table 3: Level of knowledge, attitude and practice among MBBS and nursing students.

Domain		MBBS students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Knowledge	Good Knowledge	87 (81.31)	58 (55.24)	<0.001**
	Poor Knowledge	20 (18.69)	47 (44.76)	
Attitude	Positive Attitude	91 (85.05)	73 (69.52)	0.011*
	Negative Attitude	16 (14.95)	32 (30.48)	
Practice	Good Practice	21 (19.63)	15 (14.29)	0.394
	Poor Practice	86 (80.37)	90 (85.71)	

(p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant)

Table 4 compares the pattern of self-medication between the two academic groups. The most common indication for self-medication in both the groups was found to be headache (62.62% of MBBS students and 49.52% of nursing students) but the intergroup difference was statistically insignificant (p=0.0548). MBBS students also self-medicated for fever (31.78%) and cough and cold (25.23%) more frequently than nursing students (19.05% and 12.28%, respectively) and the difference was statistically significant (p=0.0335 and p=0.0168, respectively). However, nursing students significantly self-medicated for gastric complaints (31.43% vs 19.63%; p=0.0486) as compared to MBBS students. The frequencies of self- medication for pain, allergy and other indications were comparable between the two groups.

Both MBBS and nursing students more frequently self-medicated with analgesics (50.47% vs 44.76%) but no statistically significant difference was observed (p=0.405). As compared to nursing, a significant proportion of MBBS students used antipyretics (35.51% vs 20%; p=0.012) and antihistamines (24.3% vs 9.52%; p=0.004). In contrast, anti-diarrhoeals were used significantly more commonly by nursing group than MBBS (16.82% vs 29.52%; p=0.028). However, intergroup comparison of frequencies of use of antibiotics, antacids, anti-emetics, multivitamins and other drugs was found to be statistically insignificant.

Table 4: Pattern of self-medication among participants (multiple answers were possible)

Variable		MBBS students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Indication	Fever	34 (31.78)	20 (19.05)	0.0335*
	Cough and Cold	27 (25.23)	13 (12.38)	0.0168*
	Headache	67 (62.62)	52 (49.52)	0.0548

Continued.

Variable		MBBS students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
	Gastric complaints	21 (19.63)	33 (31.43)	0.0486*
	Allergy	19 (17.76)	10 (9.52)	0.0811
	Pain	29 (27.1)	37(35.24)	0.2009
	Others	7(6.54)	13 (12.38)	0.1459
Drugs used	Analgesics	54 (50.47)	47 (44.76)	0.405
	Antibiotics	14 (13.08)	22 (20.95)	0.125
	Antihistamines	26 (24.3)	10 (9.52)	0.004*
	Antacids	17 (15.89)	23 (21.90)	0.262
	Anti-emetics	12 (11.21)	19 (18.1)	0.155
	Antidiarrheals	18 (16.82)	31 (29.52)	0.028*
	Antipyretics	38 (35.51)	21 (20)	0.012*
	Multivitamins	20 (18.69)	17 (16.19)	0.217
	Others	9 (8.41)	4 (3.81)	0.676
Reasons for Self-medication	Disease is minor	71 (66.36)	77 (73.33)	0.269
	Time saving	58 (54.21)	53 (50.48)	0.5867
	Cost- saving	42 (39.25)	74 (70.48)	<0.0001***
	Previous experience	21 (19.63)	32 (30.48)	0.0681
	Easy availability of medicines without prescription	39 (36.45)	73 (69.52)	<0.0001***
	Others	17 (15.89)	20 (20.95)	0.3413
Source of information	Academic knowledge	57 (53.27)	20 (19.05)	<0.0001***
	Previous Prescription	48 (44.86)	64 (60.95)	0.0189*
	Pharmacist	17 (15.89)	35 (33.33)	0.0029*
	Friends/Family	43 (40.19)	29 (27.62)	0.0524
	Internet	66 (61.68)	49 (56.19)	0.4160

(multiple answers were possible) (p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant)

A comparative analysis of digital sources used by participants are compiled in Table 5. Artificial intelligence emerged as the most preferred digital source in both the groups (62.62% of MBBS vs 67.62% of Nursing) but the proportion of usage was statistically comparable (p=0.4482). Likewise, Google/ general search engines was another frequently employed source, cited by significantly comparable proportion of MBBS (59.81%) and nursing (56.19%) students (p=0.596). In contrast, PubMed/medical databases and medical websites/apps were predominantly utilized by MBBS students and a significant intergroup difference was observed (p=0.0107 and p=0.0053 respectively). However, usage of other sources like online text books/ e-books, and social media platforms were comparable between groups.

Table 5: Digital sources consulted to obtain information about diseases and medicines.

Digital sources	MBBS Students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Google/ general search engines	64 (59.81)	59 (56.19)	0.596
PubMed/ medical databases	11 (10.28)	2 (1.90)	0.0107*
Medical websites/ apps	15 (14.02)	3 (2.86)	0.0053*
Online text books/ e-books	31 (28.97)	27 (25.71)	0.5965
Social media platforms	9 (8.41)	13 (12.38)	0.3636
Artificial intelligence	67 (62.62)	71 (67.62)	0.4482

(multiple answers were possible) (p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant)

Table 6 represents intergroup comparison of practises related to self-medication. Both the groups showed statistically significant difference regarding completion of full course of medication (p=0.0179), checking of expiry date of drugs (p=0.0045) and reading drugs' instructions/leaflet before using (p=0.0214). As compared to nursing students, MBBS students exhibited better self-medication practices with respect to the above-mentioned parameters. Intergroup comparison did not reveal statistically significant differences in the incidence of adverse effects (p=0.5268), sharing of prescriptions (p=0.1761) and self-escalation of dose in when adequate symptom relief was not achieved (p=0.3109).

Table 6: Practices related to self-medication.

Questions		MBBS Students (n=107) Frequency (%)	Nursing students (n=105) Frequency (%)	P value
Do you complete full course of medication?	Always	35 (32.71)	33 (31.43)	0.0179*
	Sometimes	58 (54.21)	39 (37.14)	
	Never	14 (13.08)	33 (31.43)	
Do you check expiry date?	Always	29 (27.10)	31 (29.52)	0.0045*
	Sometimes	69 (64.49)	48 (45.71)	
	Never	9 (8.41)	26 (24.76)	
Do you read instructions/leaflet before use?	Always	16 (14.95)	7 (6.67)	0.0214*
	Sometimes	18 (16.82)	10 (9.52)	
	Never	73 (68.22)	88 (83.81)	
Have you experienced any adverse effects after self-medication?	Yes	13 (12.15)	16 (15.24)	0.5268
	No	94 (87.85)	89 (84.76)	
Have you shared your prescription with someone who has similar symptoms as yours?	Yes	77 (71.96)	84 (80)	0.1761
	No	30 (28.04)	21 (20)	
Do you increase the drug dose yourself if symptoms are not relieved?	Yes	21 (19.63)	15 (14.29)	0.3109
	No	86 (80.37)	90 (85.71)	

(p<0.05 is considered statistically significant; *Significant, **highly significant; ***Very highly significant)

DISCUSSION

The World Health organisation (WHO) recognises self-medication as an integral part of self-care, provided it is practised rationally. Medical and paramedical students exhibit a high propensity for self-medication practises, owing to their increasing academic knowledge, easy access to medicines and perceived ability to manage minor ailments. Although health care education is essential for enhancing knowledge and skills related to diseases and their pharmacotherapy, it may also increase the tendency to self-medicate. Against this background, the present comparative study aimed to assess knowledge, attitudes and practises of self-medication between undergraduate MBBS and Nursing students.

The present study demonstrated a high overall prevalence of self-medication (81.60%) during the preceding year, with comparable proportions among MBBS (82.24%) and Nursing students (80.95%). The minor variance lacked statistical significance (p=0.81). Our findings are consistent with those observed by Sajith et al (87.5%), and Karmakar et al (88.3%) and Gohain et al (76.6%), who also observed higher rates of self-medication among health care students.[8,17,18] However, the existing literature reveals conflicting trends on examination of intergroup trends. Karmakar et al reported a statistically significant disparity between the two academic streams, with a greater proportion of MBBS students practising self-medication as compared to nursing students (91.5% vs 85%; p=0.035).[17] In contrast, Gohain et al demonstrated a pattern closer to our findings; although they observed greater prevalence of self-medication among MBBS students than their nursing counterparts (82.5% vs 68.4%), the difference lacked statistical significance (p=0.086).[18] Although, the available literature consistently reports high prevalence of self-medication among medical students, the present study highlights comparable practise across both the disciplines.

The age profile in our study differed considerable between the two academic streams (19.24±1.09 years in MBBS vs 20.46±1.72 years in nursing; p<0.0001) and majority of the MBBS students were ≤20 years of age whereas nursing students predominantly belonged to the age group of 21-23 years. Our findings have been found to be consistent with study by Sajith et al that observed a greater representation

of study respondents below 25 years of age.[8] Similarly, PMN et al and Gohain et al documented a mean age of 19.26±1.69 years and 21.8±1.62 years respectively.[7,18] This predominance of participants in their late teens and early twenties suggests that academic pressure and increasing exposure to medical knowledge may make them more susceptible to self-medication.

In our study, gender distribution differed significantly between the two streams (p<0.0001). The MBBS group demonstrated a relatively balanced gender distribution (44.86% males and 55.14% females), whereas females were over-represented (81.9%) in the nursing group. This finding differs from the observations by PMN et al, Easwaran et al and Chawda et al who reported comparable gender distribution in their studies.[7,15,19] In contrast, Gohain et al and Honnekeri et al demonstrated female predominance.[18,20] Although, various studies in the past have recognised female sex as a potential risk factor for self-medication, this association was not evident in the present study.[21] Furthermore, despite the heavy female skew in the nursing group, self-medication prevalence was comparable across streams, suggesting that gender composition alone does not account for variations in self-medication practices.

The two academic groups significantly differed in their geographical origin (p<0.0001) and living arrangements (p<0.0001). A higher proportion of MBBS students (68.22%) belonged to urban areas while, the proportion of rural students was higher in nursing stream (58.10%). Also, hostel residence was fairly common among MBBS students (55.14%) whereas nursing students were majorly day scholars (81.9%). Although, urban students have a greater access to pharmacies and health care facilities and hostel residence may encourage peer-driven drug sharing and non-prescription drug use, the prevalence of self-medication was comparable between MBBS and nursing students.[12,22] This suggests other factors may contribute more substantially to self-medication behaviour.

Parental profession may influence students' health-related information and attitudes towards medication use. Students whose parents work in health care or highly skilled professions may have better access to home drug supplies and expert medical advice.[1,20] In the present study, parents of both MBBS and nursing students mainly belonged to non-medical professions and their inter-group distribution did not differ significantly (p=0.3893). Therefore, profession of parents was unlikely to have influenced the observed self-medication practices among the study participants.

Self-medication practices may also be affected by history of pre-existing medical conditions. Students with previous or recurrent illness tend to be more familiar with disease symptoms and their prescribed drug regimens, potentially leading to the reuse of medicines without professional consultation.[7,20] In the present study, pre-existing medical conditions were documented in only 7.48% of MBBS and 10.48% of nursing students, with no statistical intergroup difference (p=0.4579). Concurrently, students' socioeconomic status may influence how they access and use medicines. Individuals from lower socioeconomic background tend to self-medicate to avoid health care expense such as consultation fees, transportation charges, etc. In contrast, individuals from higher socio-economic class may practise self-medication for convenience, owing to greater affordability and easier access to over-the-counter drugs, mainly for the management of minor ailments.[12,23,24] A highly significant difference was observed in the socioeconomic status in the present study (p<0.0001). MBBS students belonged predominantly to upper and middle socioeconomic strata whereas over half of nursing students belonged to lower socioeconomic tier. Despite this substantial difference, self-medication practises remained comparable between the two groups. This establishes that neither long term management nor socio-economic status drive the observed self-treatment rates in the present study.

In the current study, MBBS students demonstrated better knowledge (81.31% vs 55.24%; p<0.0001) towards self-medication as compared to nursing students. This can be attributed to difference in curriculums. MBBS syllabus extensively focusses on pharmacology and its clinical application. MBBS students receive in-depth knowledge of drug mechanisms, therapeutic uses, adverse effects, drug interactions and rational pharmacotherapy which may account for their better understanding of drug usage and safer self-medication practices as compared to nursing students.[20,25,26] Similar findings were observed in studies by Easwaran et al, Sundararajan et al and Yadav et al who observed that students' educational expertise was associated with their adequate knowledge regarding self-medication.[15,27,28] In a similar manner, a positive attitude towards self-medication was exhibited by 85.05% of MBBS students as compared to 69.52% of nursing students, the difference being statistically significant (p=0.011). These findings align with previous research conducted by Easwaran et al and Gohain et al where attitudes differed by educational background of students. Although both the academic streams demonstrated adequate knowledge and positive attitude toward self-medication, actual practices remained poor.[15,18] About 19.63% of MBBS and 14.29% of nursing students demonstrated poor practices, showing no statistically significant difference (p=0.394). This discrepancy highlights the evident knowledge-practice gap which suggests that theoretical educational knowledge may not reliably translate into responsible medication behaviour. Our findings mirror Easwaran et al where despite adequate knowledge (85.6%) and attitudes (84.8%), the prevalence of good practice remained low (15.9%), reinforcing the fact that knowledge alone cannot guarantee safe self-medication.[15]

The comparative evaluation reveals distinct pattern of self-medication between MBBS and nursing students. Headache emerged as the most commonly reported

indication in both the groups (62.62% in MBBS vs 49.52% in nursing; p=0.0548). This may be due to high academic stress, extended clinical duties and irregular sleep patterns, commonly experienced by healthcare students. This finding is in agreement with a narrative review by Aljinović-Vučić et al which observed headache as one of the most common indications for self-medication globally.[29] Furthermore, the two academic groups showed differences in the pattern of other organ system complaints. MBBS students exhibited significantly higher rates of self-medication for fever (31.78% vs 19.05%; p=0.0335) and cough/cold (25.23% vs 12.38%; p=0.0168). Similar pattern of indications for self-medication has been reported in several studies.[8,18,30,31] Conversely, nursing students more frequently self-medicated for gastric complaints (31.43% vs 19.63%; p=0.0486). Similar observation was reported in a cross-sectional study by Bharti et al where 62.44% of nursing students employed gastro-intestinal medications.[32] This difference may be attributed to variable clinical schedules, eating habits and physical exertions associated with nursing students.

Analgesics were the most commonly consumed drug class in both the groups (MBBS: 50.47% Nursing: 44.76%), but the inter-group difference remained insignificant (p=0.405). This finding is in line with several previous studies, with analgesics being frequently employed for self-medication among health care students.[8,16,24,33-35] Also, MBBS students significantly self-medicated with anti-pyretics (35.51% vs 20%; p=0.012), corresponding with higher occurrence of fever among them. The use of anti-histamines also predominated among MBBS students (24.3% vs 9.52%; p=0.004). These findings are in agreement with similar pattern observed in various Indian studies.[36-38] In contrast, consumption of antidiarrheal drugs was significantly higher among nursing students in our study (29.52% vs 16.82%; p=0.028), which reflects higher occurrence of gastro-intestinal complaints observed among them.

Despite adequate knowledge, healthcare students demonstrate a substantial tendency towards self-medication with antibiotics. In our study, prevalence of antibiotic self-medication was less and comparative across both the academic streams (MBBS: 13.08% Nursing: 20.95%; p=0.125), which indicates that both medical and nursing students possess a comparable level of awareness regarding risks of inappropriate antibiotic use. Conversely, Karmakar et al. observed a considerably higher antibiotic misuse (61.2% of MBBS and 40.0% of nursing students).[17] A similar trend was reported in research by Bharti et al.[32]

The reasons for self- medication were also explored in the present study. In both groups, perceiving the disease as minor was the most frequently reported reason, although the intergroup difference was statistically insignificant (66.36% of MBBS vs 73.33% of Nursing students; p=0.269). This similarity suggests that perceived severity of illness may be a key determinant of self-medication among health-care students, irrespective of their academic streams. This finding is consistent with those reported in previous literature.[33,37,39,40] Also, Nursing students were more likely to cite cost-saving (70.48% vs 39.25%; p<0.0001) and easy availability of medicines without prescription (69.52% vs 36.45%; p<0.0001), as reasons for self-medication. In a study by Opoku et al financial barriers (81.3%) served as a key determinant for self-medication among nursing and midwifery students in Ghana.[41]

In our study, MBBS students mainly relied on their academic knowledge as the source of information for self-medication (53.27% vs 19.05%; p<0.0001). This finding aligns directly with the collective evidence from several previous studies, where a substantial proportion of medical students relied directly on their pharmacological knowledge acquired through textbooks and clinical training.[8,17,18,20,37] Conversely, Nursing students significantly sought information from previous prescriptions (60.95% vs 44.86%; p=0.0189) and pharmacists (33.33% vs 15.89%; p=0.0029). This finding is in line with study by Sareetha et al where the most common reason was previous prescription followed by pharmacist advice.[42] However, participants in research by Opoku et al. primarily self-medicated on the basis of advice from friends or family.[41]

Nowadays, utilization of digital platforms to obtain health related information has become widespread among healthcare students. This practise may increase risk of misdiagnosis of symptoms, inaccurate information and incorrect dosing during self-medication. In the present study, the participants of both the academic streams heavily relied upon artificial intelligence (MBBS: 62.62% Nursing: 67.62%; p=0.4482) and Google/general search engines (MBBS: 59.81% Nursing: 56.19%; p=0.596), with no significant inter group differences. However, a major difference was observed in the use of specialised, evidence based medical platforms. MBBS students employed PubMed/medical databases (10.28% vs 1.90%; p=0.0107) and medical websites/apps (14.02% vs 2.86%; p=0.0053) significantly more than nursing students. In studies by Sajith et al and Gohain et al although general internet use was common across health care streams, the greater use of medical databases by MBBS students in our study may be attributed to their enhanced exposure to formal medical training, which encourages verification of self-medication decisions using reliable databases.[8,18]

A greater number of concerning facts were identified regarding self-medication practise in the present study. Statistically significant differences were observed, with a higher proportion of nursing students reporting that they never completed the full treatment courses (31.43% vs 13.08%; p=0.0179) or checked expiry dates (24.76% vs 8.41% p=0.0045). Furthermore, majority of the students from both groups neglected reading package instructions/ leaflets (MBBS: 68.22% Nursing: 83.81%), which exposes individuals to severe clinical complications such as drug toxicities, antimicrobial resistance and treatment failure. A similar trend was observed by Easwaran et al and

Karmakar et al.[15,17] However, no significant difference was observed regarding other self-medication practices: sharing of prescription (71.96% of MBBS vs 80% of Nursing), unapproved dose-escalation (19.63% of MBBS vs 14.29% of Nursing) and occurrence of adverse effects (12.15 % of MBBS vs 15.24% Nursing). Overall, these findings emphasise the need of rational drug use, adherence to therapy and prudent self-medication practises.

Limitations

The present study has some limitations. Firstly, the cross-sectional design of the study captures a snap-shot of self-medication practices at a specific point in time. This limits assessment of causal relationships and generalizability of findings across populations. Secondly, the study employs self-administered questionnaires, which exposes findings to recall bias and social desirability bias. Lastly, the MBBS group included only first and second year students whereas nursing students were distributed across all four years. This difference in academic-year distribution might have influenced self-medication behaviour. Despite these limitations, the present study provides valuable insights and offers directions for future research.

CONCLUSION

The present study highlights a high prevalence of self-medication among both MBBS and nursing students, irrespective of their differences in curriculum, knowledge, attitudes and socio-economic status. Despite having higher theoretical knowledge and clinical exposure in medical students, responsible self-medication behaviour may not be ensured.

The most frequent indication for self-medication in both the groups was headache which may be attributed to their academic stress and clinical workload. Additionally, MBBS students significantly relied on their pharmacological training and evidence-based databases to self- treat minor ailments like fever and respiratory problems using antipyretics and antihistamines.

On the other hand, nursing students significantly self-medicated for gastro-intestinal issues, driven by financial constraints, easy availability of over-the-counter medicines and information obtained from previous prescriptions and pharmacists. Surprisingly, both the groups exhibited significant knowledge-practise gap marked by unsafe practises such as neglecting expiry dates, ignoring package instructions, discontinuing therapy prematurely and sharing prescriptions.

All this increases the risk of anti-microbial resistance and adverse drug reactions. Keeping this in mind, health care institutions must bridge the knowledge-practise gap by incorporating educational programs on evidence-based drug information, rational pharmacotherapy, safe self-medication practises and antimicrobial stewardship programmes in undergraduate curriculum.

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