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RESEARCH PAPER

Assessment of self-medication practices among nursing students of Northeast India: a cross-sectional study

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ABSTRACT

***Background and aims:** This study aimed to assess the self-medication practice of the nursing students of Northeast India during the last month. The knowledge, attitude, and perceptions/practices of nursing students toward self-medication were also attempted to assess.* ***Methods**: A cross-sectional study design was used to conduct this study among nursing students from various states of the Northeast region of India in April 2023. Data was collected from the Nursing students using a simple random sampling technique. The pre-tested, semi-structured questionnaire was adopted along with some modifications to gather the necessary information on socio-demographic characteristics and determinants for the self-medication practice. Data from a total of 226 nursing students were received via the online questionnaire. Statistical software SPSS version-29 was used for data analysis.* ***Results**: The median age of the participants was 21 years (IQR [20-23]). Most of the participants were female (97%). Students with older age (odd ratio: 1.670) and higher academic years (ODD RATIO: 1.034) were proportionally correlated with the self-medication practice. Fever (38%), Headache (24%), and Cold and cough (13%) were commonly reported conditions for self-medication. Paracetamol (n=139) was commonly self-medicated by the nursing students. Old prescriptions (35%) and pharmacy shopkeepers (27%) were the primary source of information about drugs. Most students were using drugs repeatedly (32%) and suggested self-medication may be done if the uses of the medicines are known (68%).* ***Conclusion:** Considering the attitude and perception of nursing students toward self-medication, awareness and education among the nursing students and the general population must be prioritised, and the use of drugs must be regulated and monitored among them.*

***Keywords**: Self-Medication; Nursing; Northeast India; Paracetamol; Fever; Awareness*

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INTRODUCTION

Self-medication is the practice of selecting and using medicine by the individual to treat self-recognised or self-diagnosed conditions or symptoms without the consultation of a registered medical practitioner. The WHO defined self-medication as "using drugs to treat self-diagnosed diseases or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms" .[1]

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The drugs used during self-medication are commonly available over the counter (OTC)without a prescription. The prevalence of self-medication in India varies from 8.3% to 93%.[2] As observed, during the COVID-19 pandemic, OTC medications, particularly analgesics, anti-cold and cough medicines, and anti-allergic medicines, were restricted and monitored. However, once the pandemic subsided, these limitations were lifted.[3] As a result, a wide range of drugs were readily accessible from pharmacies and retail outlets, which showed a sudden growing trend of self-medication practices among the general population.[4]

Self-medication practices were also observed to be alarmingly high among healthcare providers despite knowing the consequences and potential risks of self-medication practices, which include wrong self-diagnosis, inappropriate drug use, delays in seeking medical help when required, erroneous manner of administration, inaccurate dosage, adverse drug reactions, undesirable drug interactions, masking of actual disease and risk of dependence and abuse.[5,6] Among healthcare providers, nursing professionals are persistently and tirelessly involved in patients' healthcare and ensure the rational use of drugs by the patients.[7,8] In India's Northeast region, self-medication practices in nursing students have still not been assessed after the COVID-19 pandemic. After becoming qualified nursing professionals, they will significantly impact healthcare services while working in various clinical settings and institutes. Therefore, our study considered the assessment of self-medication practices done by the nursing students during the last month.

MATERIALS AND METHODS

Study design: A cross-sectional study was conducted among nursing students from various states of the Northeast region of India in April 2023. Northeast India comprises eight states (Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura). Ethical clearance was obtained, and the confidentiality of the participants was assured by avoiding identifiers during data collection in this study. These randomly selected study populations were informed orally and telephonically about the objectives and process of the study before data collection. The data was gathered anonymously, and study participation was entirely voluntary. Neither the case records nor the data extracted were used for other purposes.

Eligibility criteria: Nursing students who passed out or are still pursuing General Nursing and Midwifery (GNM) and Bachelor of Science (BSc) Nursing courses were willing to fill out a self-administered online questionnaire form included in the study.

Sample size and sampling technique: Data was collected from the Nursing students using a simple random sampling technique. The intention was to include a maximum number of nursing students from Northeast India to assess the self-medication practices among them. Segregation was done after data collection to discard incomplete forms, and the final sample size was 226 participants.

Data collection process: The pre-tested, semi-structured questionnaire was adopted from previously published articles.[7,8] Some modifications were made in the data collection tool to gather the necessary information on socio-demographic characteristics and determinants for self-medication practices. The data was collected for self-medication practices done by nursing students during the last month. Online questionnaires were distributed among nursing students of Northeast states of India, and follow-up was done to retrieve the data collection tools. In this study, informed consent was obtained from the participants before completing the checklist. Self-medication practised by the nursing students or not was the study's dependent variable.

Data quality control and management: The data collection tool was pre-tested for accuracy, completeness, and consistency on 5% of nursing students before data collection. The data collection commenced after some modifications were made to the tool based on the pre-test results. The data with incomplete information provided by the participants was excluded to avoid any error.

Table 1 Socio-demographic characteristics of the participants practising self-medication

Sl. No.	Variables	Categorical Variables	Total (N=226)	Self-Medication Practice		P-value	Odd Ratio (OR)	95% (confidence interval) CI	
				Yes	No			Lower	Upper
1	Age Group	≤20	72	45	27	0.128	1	-	-
		21-25	127	87	40	0.498	1.321	0.591	2.951
		26-30	13	5	8	0.141	0.307	0.064	1.478
		≥31	14	11	3	0.569	1.670	0.286	9.747
2	Gender	Female	219	142	77		1	-	-
		Male	7	6	1	0.638	1.758	0.167	18.509
3	Academic year	1st year	49	33	16	0.812	1	-	-
		2nd year	43	21	22	0.559	0.692	0.202	2.374
		3rd year	70	49	21	0.746	1.215	0.373	3.952
		4th year	15	12	3	0.887	1.130	0.211	6.036
		Passed out students	49	33	16	0.963	1.034	0.254	4.212
4	Stream	GNM(Diploma)	149	94	55		1	-	-
		BSc (Degree)	77	54	23	0.766	1.158	0.440	3.050
5	Side effect	Yes	6	5	1	0.354	1	-	-
		No	157	104	53	0.568	0.526	0.058	4.794
		No response	63	39	24	0.928	0.900	0.090	8.961
6	Experience	Beneficial	201	140	61	0.004	1	-	-
		Not Cured	11	7	4	0.904	0.922	0.245	3.466
		No response	14	1	13	0.001	0.025	0.003	0.227

Data processing and analysis: Data were entered and analysed using Statistical software SPSS version-29. Descriptive data were presented in frequencies, percentages, and median [interquartile range (IQR)] with figures and tables. Odds ratios (95% CI) were calculated, and finding with $p<0.05$ was considered statistically significant.

RESULTS

Two hundred twenty-six (n=226) nursing students participated in our study, and the median age was 21 years (IQR [20-23]). Most participants belonged to Assam (47%) **(Figure 1).** Only one student from each state, Manipur and Sikkim, participated.

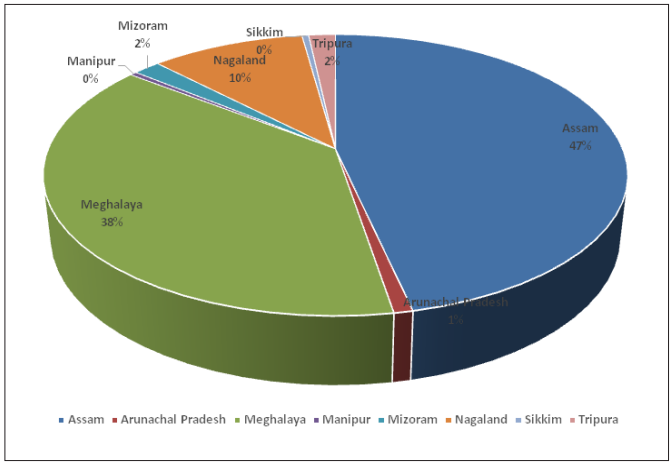

Figure 1 Distribution of the total participants state-wise from the Northeast States of India

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Most participants belonged to the age group of 21-25 years (n=127). Based on the data obtained, out of the total participants (n=226), 65% of the nursing students have used medication without a doctor's prescription (self-medication). The self-medication practice was higher in the age group of 21-25 years (OR: 1.321) and ≥31 years (OR: 1.670). The self-medication practice was common in 3rd year (OR: 1.215), followed by 4th year (OR: 1.130) and passed-out (OR: 1.034) nursing students **(Table 1)**. Very few participants (n=6) have reported side effects after self-medication, and most of them had beneficial experiences (n=201), which was found statistically significant (P=0.004).

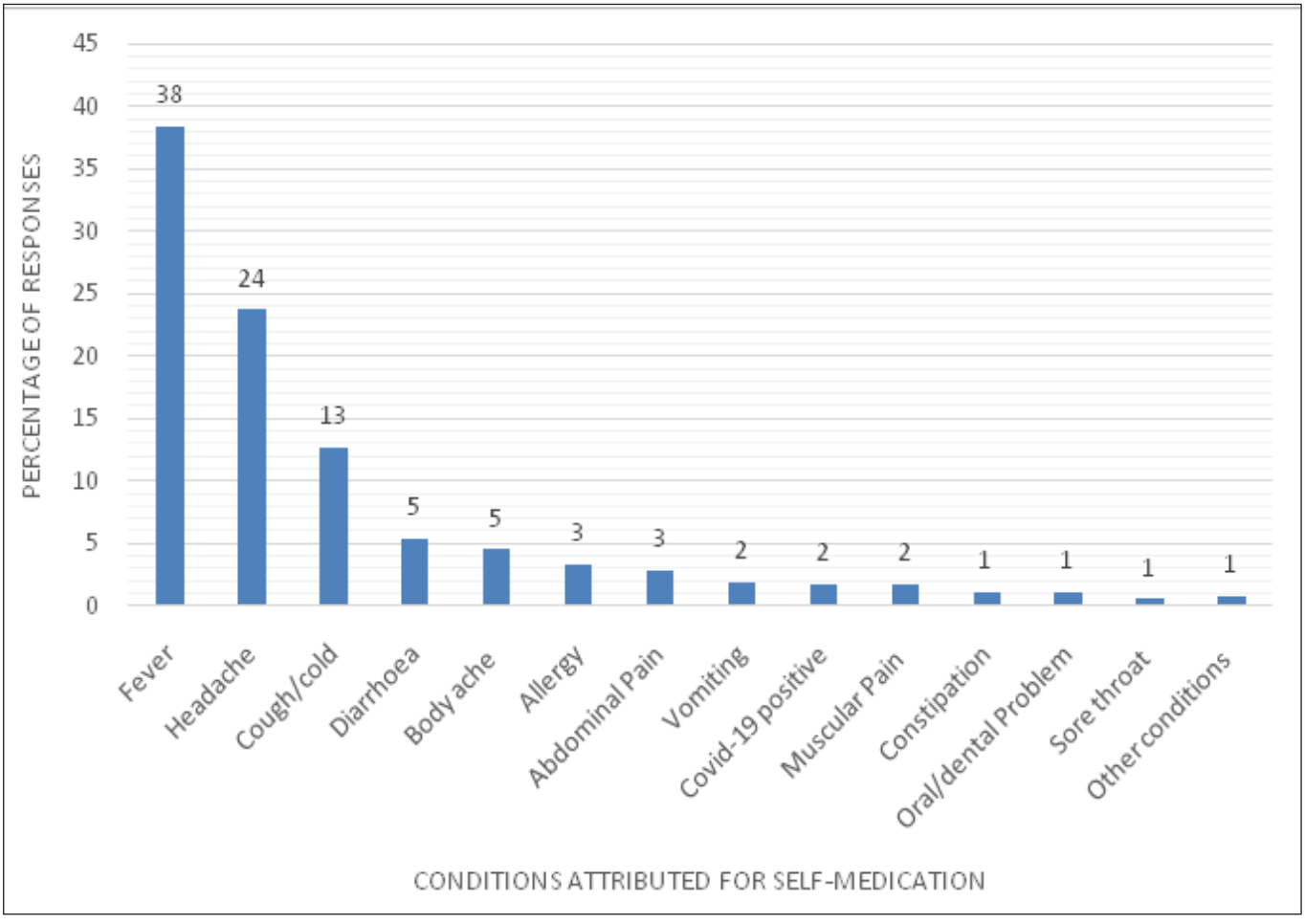

Figure 2 Conditions for which the nursing students practised self-medication

Most of the nursing students have practised self-medication in less severe conditions like fever (38%), headache (24%) and cough and cold (13%) **(Figure 2)**. Although most illnesses are supposed to be cured with time, even if no medicines are taken, self-medication with OTC medicines, particularly analgesics, is often used for quick relief.

Table 2 Classification of the drugs used during self-medication by the nursing students

Sl. No.	Drug Classifications	Drugs used for Self-medication	Frequency
1	Analgesics	Paracetamol	139
2	Antihistamines	Cetrizine	9
		Fexofenadine	1
3	Antibiotics	Azithromycin	9
		Ofloxacin	3
		Amoxicillin	2
		Gentamicin	1
4	Cough Syrup	Ascoril LS syrup	2
5	Gastrointestinal drugs	Metronidazole	5
		Domperidone	3
		Loperamide	1
		Dicyclomine	1
6	Leukotriene receptor antagonist	Montelukast	3
7	Multivitamin	Vitamin C	4
8	NSAID	Ibuprofen	6
		Aceclofenac	4
		Diclofenac	3
		Naproxen	1
9	Proton pump inhibitors	Pantoprazole	4
		Rabeprazole	1
10	5-HT3 antagonists	Ondansetron	3

Most nursing students repeatedly used the same drug (32%) and reported having sufficient knowledge about the condition (24%). Another common reason was that medicine was previously prescribed (16%) **(Figure 3)**.

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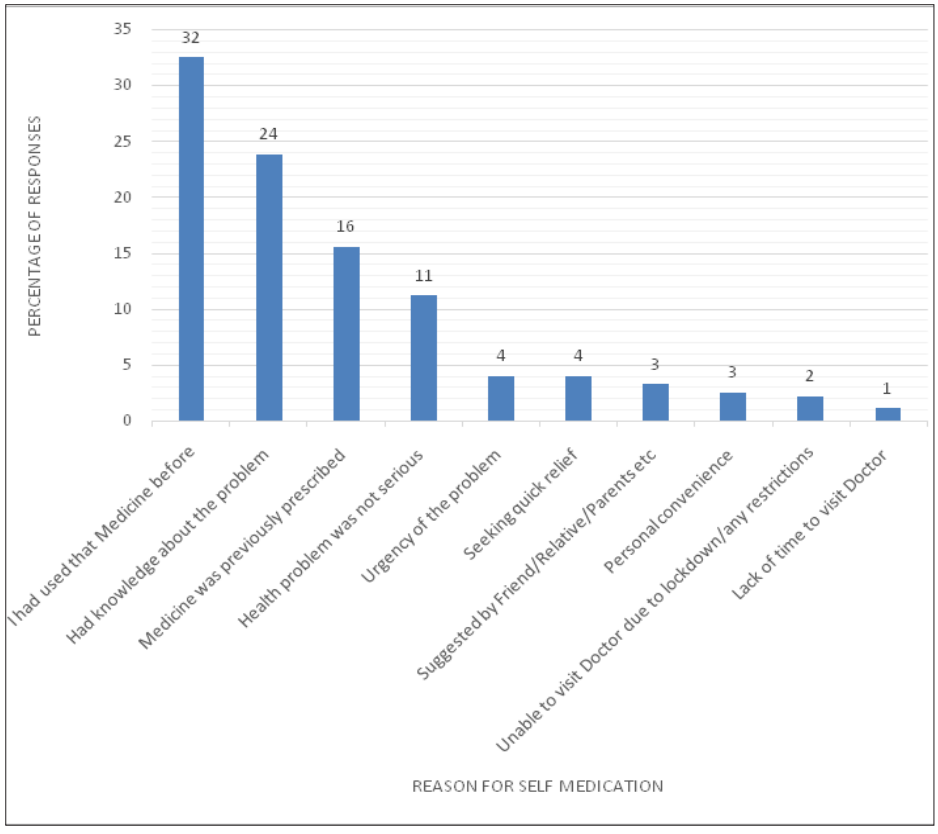

Figure 3 Reasons for which the nursing students practised self-medication

Nursing students have gathered information about drugs for self-medication mostly from old prescriptions (35%), followed by pharmacy shopkeepers (27%) and textbooks (19%) **(Figure 4)**.

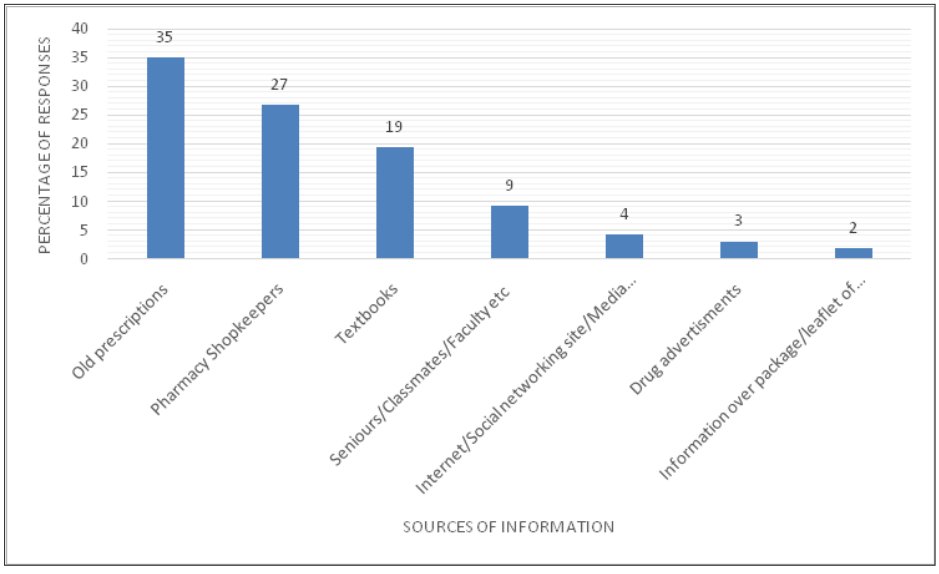

Figure 4 Sources of information about drugs used during self-medication

Most of the nursing students were in favour of self-medication if the uses of the medicines are known (68%), followed by self-medication must be considered under self-care (31%), and considered self-medication as harmless and wished to continue (1%) **(Figure 5)**.

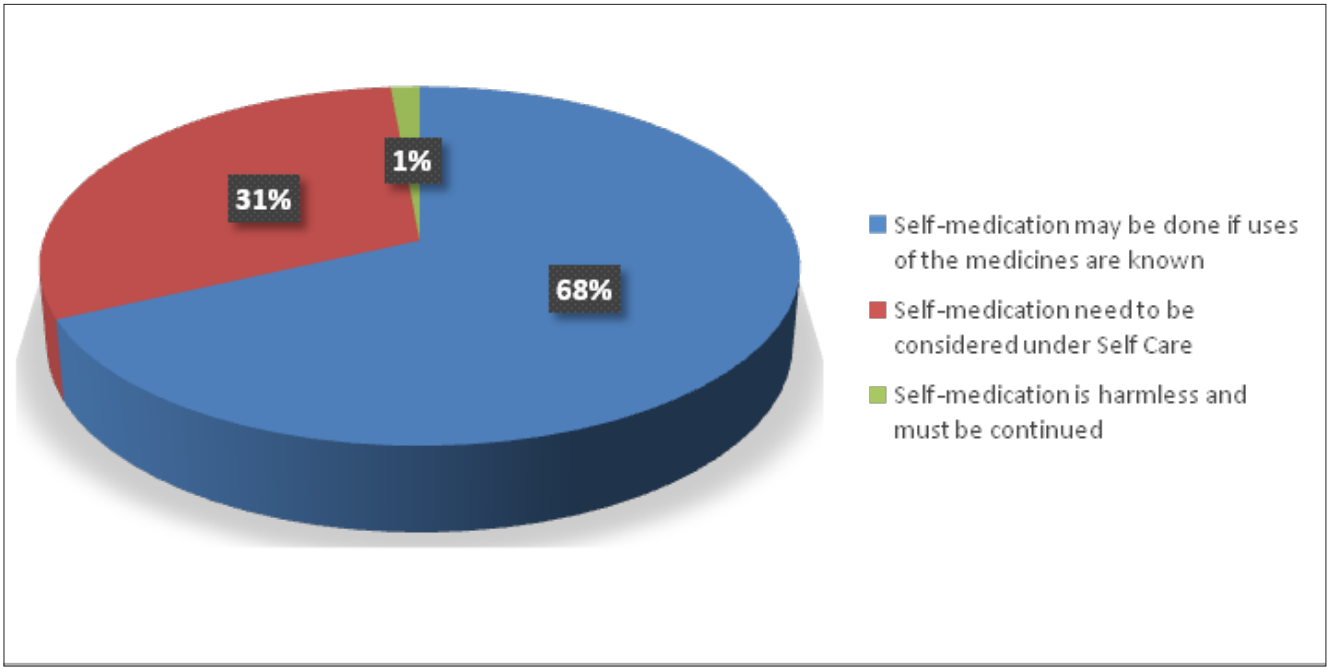

Figure 5 Perception of the participants towards self-medication

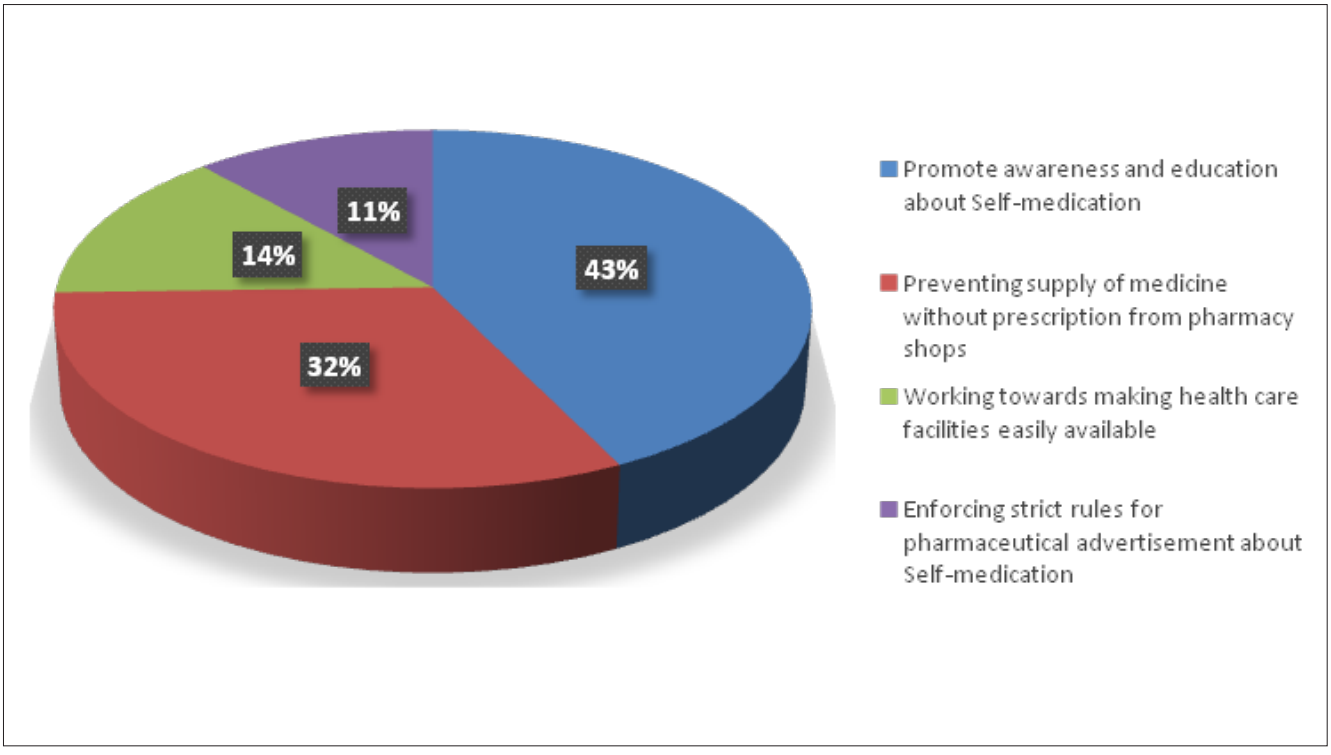

Figure 6 Measures are required to avoid self-medication as per the participants

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DISCUSSION

This study was conducted to assess the practice, knowledge, and attitude toward self-medication practices done during the last month by the nursing students of Northeast India. The median age of the nursing students was 21 years. Of the total students who participated, 65% of the nursing students practised self-medication. Most of the participants were female. Men are still hesitant to choose nursing, which may be due to the conservative view of society and lack of knowledge of the nursing profession, which is widely perceived as "women's work."[9]

Northeast India is comprised of a total of 8 States (Figure 1). Assam consists of numerous Nursing Colleges, including Private and Government Institutes. Many nursing students from other Northeast States often shift to Assam for their higher studies. Therefore, most of the responses may have been received from the State of Assam compared to other States of Northeast India.

In our study, students with older age and higher academic years correlated significantly with the frequency of self-medication practices among the nursing students. From the third academic year, self-medication practices were found to be increasing gradually through their course, and higher age group (≥31 years) participants in nursing were found to practice self-medication more than other age groups **(Table 1)**. Other studies also analysed these factors, which appeared constant in our study.[10,11]

Most nursing students have self-medicated due to fever followed by headache, cough and cold. Most of them were using paracetamol in these conditions **(Table 2)**. A similar pattern was also observed among French university students, where paracetamol was commonly used for headaches followed by menstrual pain, fever, migraine, cold, and cough.[12] Paracetamol is a widely used analgesic and antipyretic, easily accessible and readily available on both prescription and over-the-counter (OTC).[13] Pharmacies can sell OTC drugs without a prescription straight to the customer under the country's rules. However, the excessive and prolonged use of paracetamol can lead to harmful effects on health, including liver disorders, cardiovascular disease, and respiratory disease.[14] Thus, raising awareness among the students and the general population about the adverse effects of paracetamol due to long-term and excessive usage became foremost and essential.

Antibiotics are often exposed to a high rate of self-medication and readily susceptible to the risk of misuse. Among antibiotics, the nursing students used azithromycin, ofloxacin, amoxicillin, and gentamicin during the self-medication **(Table 2)**. Though dispensing antibiotics without a prescription is restricted, the participants easily access these antibiotics. Poor drug control regulations in many countries have led to the availability of many harmful drugs, such as OTC, which should ideally be in reach with a prescription only.[15] Therefore, emphasis on awareness and sensitisation of complications such as adverse effects, therapeutic failure, and, most significantly, antibiotic resistance associated with self-medication practice needs to be disseminated to the population.[16]

Apart from pharmacy shopkeepers, these nursing students became familiar with medicines from curriculum textbooks and old prescriptions. There are plenty of sources of information about medicines, like pharmaceutical advertisements in newspapers and media, peer pressure, advice from friends and relatives, etc.[17] In Punjab of Pakistan, most of the population is in the habit of self-medication because of difficulty in approaching physicians.[18] Thus, proper counselling and healthcare facilities need to be made easily accessible to the general population without any socioeconomic constraint, and simultaneously, pharmaceutical advertisements of the drugs need to be regulated to avoid self-medication practices **(Figure 6)**.

As observed, most nursing students have practised self-medication with the same drug they used previously. Most cited the reason for having sufficient knowledge about the medicine and condition; therefore, the same drug was used in

the next episode. Considering the illness mild and assuming sufficient knowledge about medicine and aliment were the most common reasons reported for self-medication practice.[19] In our study, most participants used self-medication and repeatedly used the same medicine, mainly in case of less serious health problems and seeking quick relief. Although nursing students know the underlying health condition and medicines, the potential side effects of recurrent use of OTC drugs should also be taken into consideration while performing self-medication. Also, symptoms like headache or fever might sometimes be due to a more serious underlying condition requiring proper clinical assessment and diagnosis.

Most participants in our study suggested self-medication may be considered under self-care, which can be practised if the uses of the medicines are known. Few did not consider self-medication practice entirely harmful and wished to continue (Figure 5). Self-medication should only be considered under self-care once there is judicial use of medicines. There is always a risk of irrational use of drugs, which may result in severe health problems such as drug dependence, adverse drug reactions, and prolonged suffering.[20] In our study, the participants may have developed these perceptions due to the beneficial effects they have experienced, with negligible side effects after self-medication. On the other hand, most participants also think that awareness and education about self-medication must be encouraged among the general population, and dispensing medicines without prescription from the pharmacy stores should be restricted **(Figure 6)**. Therefore, strong policies must be implemented against supplying medicines with potentially harmful side effects without a valid prescription. Also, in the case of dispensing OTC medicines, the pharmacists should be adequately trained to provide real-time information on the doses, side effects and consequences in case of drug overdose to the patients.

Limitations: This study has some limitations. The sample size was relatively small. Therefore, more studies in different contexts with a more significant sample size and measuring various potential factors would be helpful to interpret our findings. This study was conducted only among nursing students from the Northeast region of India. Hence, the findings of this study cannot be generalised. Our study was based on self-reporting with a one-month recall period; therefore, the chances of over and under-reporting with recall biases may exist in this study. Furthermore, being the cross-sectional study design, the causal-effect relationship among different variables was not analysed.

CONCLUSION

Most of the nursing participants were female, compared to male. Students with older age and higher academic years were primarily practising self-medication. The frequency of self-medication among nursing students was high, and most of them favoured self-medication if the uses of the medicines were known. Paracetamol and other antibiotics were readily available to the participants without prescription. Thus, considering the participants' attitudes and perceptions towards self-medication, awareness and education among the nursing profession and general population must be prioritised. Due to the lack of sufficient medical infrastructure and the percentage of the poor population in our country who avoid visiting healthcare professionals till they feel severely ill, people often prefer self-medication for less severe ailments. However, some common symptoms like headache and fever may sometimes be caused by other serious illnesses requiring proper medical diagnosis. Also, to rule out the harmful effects of recurrent use of OTC drugs and drug overdose, drug regulatory bodies must limit and regulate the dispensing of medicines without a prescription.

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REFERENCES

1. World Health Organization. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva: World Health Organization. 2000.
2. Rashid M, Chhabra M, Kashyap A, Undela K, Gudi SK. Prevalence and predictors of self-medication practices in India: a systematic literature review and meta-analysis. Curr Clin Pharmacol 2020;15(2):90–101.
3. Manna S, Tripathy S, Dor VJ, Padhi BK. Paracetamol usage regulation: a need of the hour. Ann Med Surg (Lond) 2022;84.
4. Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. Perspect Clin Res 2014; 5(1):32–6.
5. Fekadu G, Dugassa D, Negera G, Bakala T, Turi E, Tolossa T, et al. Self-medication practices and associated factors among healthcare professionals in selected hospitals of Western Ethiopia. Patient Prefer Adherence2020;14:353-61.
6. Esperanza Ruiz M. Risks of self-medication practices. Curr Drug Saf 2010;5(4):315–23.
7. Sado E, Kassahun E, Bayisa G, Gebre M, Tadesse A, Mosisa B. Epidemiology of self-medication with modern medicines among health care professionals in Nekemte town, western Ethiopia. BMC Res Notes 2017;10(1):533.
8. Solomon W, Abede G. Practice of self-medication in Jimma Town. Ethiop J Health Dev 2003;17(2):111-16.
9. Asif H. Men in female-dominated professions. Indian Journal of Humanities and Social Sciences 2019;7(1):29–42.
10. Faqihi AHMA, Sayed SF. Self-medication practice with analgesics (NSAIDs and acetaminophen) and antibiotics among nursing undergraduates in university college Farasan campus, Jazan University, KSA. Ann Pharm Fr 2021;79(3):275–85.
11. Klemenc-Ketis Z, Hladnik Z, Kersnik J. Self-medication among healthcare and non-healthcare students at University of Ljubljana, Slovenia. Med Princ Pract 2010;19(5):395-401.
12. Gras M, Champel V, Masmoudi K, Liabeuf S. Self-medication practices and their characteristics among French university students. Therapie 2020;75(5):419-28.
13. Ayoub SS. Paracetamol (acetaminophen): a familiar drug with an unexplained mechanism of action. Temperature (Austin) 2021;8(4):351-71.
14. Long-term adverse effects of paracetamol: a review. Br J Clin Pharmacol 2018;84(10):2218-30.
15. Ray I, Bardhan M, Hasan MM, Sahito AM, Khan E, Patel S, et al. Over-the-counter drugs and self-medication: A worldwide paranoia and a troublesome situation in India during the COVID-19 pandemic.Ann Med Surg (Lond). 2022;78:103797.
16. Jirjees F, Ahmed M, Sayyar S, Amini M, Al-Obaidi H, Aldeyab MA. Self-medication with antibiotics during COVID-19 in the eastern Mediterranean region countries: a review. Antibiotics (Basel) 2022;11(6):733.
17. Lee CH, Chang FC, Hsu SD, Chi HY, Huang LJ, Yeh MK. Inappropriate self-medication among adolescents and its association with lower medication literacy and substance.PLoS One 2017;12(12):e0189199.
18. Azhar H, Tauseef A, Usman T, Azhar Y, Ahmed M, Umer K, et al. Prevalence, attitude and knowledge of self-medication during COVID-19 disease pandemic. Pak J Med Health Sci 2021;15(5):902–5.
19. Sridhar SB, Shariff A, Dallah L, Anas D, Ayman M, Rao PG. Assessment of nature, reasons, and consequences of self-medication practice among the general population of Ras Al-Khaimah, UAE. Int J App Basic Med Res 2018;8:3-8.
20. Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, et al. Perceptions and practices of self-medication among medical students in coastal South India. PLoS One 2013;8(8):e72247.