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KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING GASTRO-OESOPHAGEAL REFLUX DISEASE AMONG UNDERGRADUATE NURSING STUDENTS AT JINNAH HOSPITAL LAHORE

Ali Hassan[*1], Rubina Jabeen[2], Kousar Perveen[3], Sajida Batool[4]

*[*1]BS Nursing, Department of Nursing, Superior University, Lahore, Pakistan*
[2]Principal, Department of Nursing, Superior University, Lahore, Pakistan
[3]Associate Professor, Department of Nursing, Superior University, Lahore, Pakistan
[4]Nursing Lecturer, Department of Nursing, Superior University, Lahore, Pakistan

[*1]ali.hasxan07@gmail.com, [2]rubinajabeen302@yahoo.com, [3]kous84@gmail.com, [4]sajidabatool0@gmail.com

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Corresponding Author: *
Ali Hassan

Abstract

Background: *Gastro-oesophageal reflux disease (GERD) is a common gastrointestinal disorder that affects daily activities, sleep quality, academic performance, and overall quality of life. Undergraduate nursing students are exposed to several GERD-related risk factors, including irregular meal timing, academic stress, clinical workload, spicy food intake, caffeine consumption, and poor sleep habits.*

Aim: *This study aimed to assess the knowledge, attitude, and practice regarding gastro-oesophageal reflux disease among undergraduate nursing students at Jinnah Hospital Lahore.*

Methods: *A descriptive cross-sectional study design was used. The study was conducted at Jinnah Hospital Lahore. A total of 260 undergraduate nursing students were selected from a population of 800 using a non-probability convenient sampling technique. Data were collected through a structured self-administered questionnaire. The data were analyzed using SPSS version 27. Frequencies, percentages, mean, standard deviation, and chi-square test were applied.*

Results: *The findings showed that most students had moderate knowledge, 126 (48.5%), neutral attitude, 118 (45.4%), and fair practice, 124 (47.7%), regarding GERD. Previous information about GERD was significantly associated with knowledge, attitude, and practice.*

Conclusion: *The study concluded that undergraduate nursing students had moderate knowledge, neutral attitude, and fair practice regarding GERD. Structured educational interventions are needed to improve awareness and preventive behaviours.*

INTRODUCTION

Gastro-oesophageal reflux disease (GERD) is a significant gastrointestinal disorder and a rising public health concern as it affects quality of life and imposes a growing burden due to its chronic and recurrent symptoms. GERD generates symptoms like heartburn, acid regurgitation, chest discomfort, and effects on sleep and daily activities (Katz et al., 2022; Vaezi et al., 2021). Many patients perceive GERD to be a minor digestive

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problem. Persistent or poor symptom control can lead to complications like oesophagitis, oesophageal strictures, and Barrett's oesophagus. Current clinical practice focuses on early symptom recognition, lifestyle changes, and rational use of proton-pump inhibitors, with referral for specialist evaluation when alarm symptoms are present (Yadlapati et al., 2022; Iwakiri et al., 2022).

The global burden of GERD has been rising and is related to changes in diet and lifestyle. Sedentary and harmful lifestyles have been associated with symptoms of GERD (Abdulrahman et al., 2024; Sadafi et al., 2024). Although the prevalence of GERD may be low in some countries, it is of clinical concern as it leads to increased healthcare visits, self-medication, decreased productivity, worse sleep, poor health-related quality of life, and increased concern in the young adult population and students due to its behavioral and educational aspects. GERD is a significant global health concern (Alomair et al., 2023; Katz et al., 2022).

GERD is a common concern among university students, who experience both stress and a range of lifestyle-related risk factors. Symptoms of GERD can get worse due to stress, a sedentary lifestyle, and irregular sleep and eating patterns, as well as a diet consisting of tea, coffee, and fast food (Baklola et al, 2023; Mu'taz et al, 2024). Medical and nursing students are even more burdened due to their clinical placements and the additional workload on top of an already busy schedule. GERD impacts students' emotional health and concentration and is a barrier to attendance and performance in class and clinical, thus, this issue is pertinent to student health and the readiness of students to enter the profession (Essa et al, 2024; Alqassab et al, 2024).

The prevention and management of GERD hinges on adequate knowledge. This entails an understanding of the definition, causes, symptoms, risk factors, and complications as well as lifestyle measures, medications, and the alarm symptoms of GERD (Alshaikh et al., 2021; Mohammad et al., 2021). The lack of knowledge may lead to self-medication and poor adherence to prevention. This is more concerning if the person is a nursing student, as they prepare to be qualified to give health education, counseling, and evidence-based nursing care (Rahman et al, 2024; Sankari et al, 2025).

Another factor that contributes to GERD behavior is one's attitude. It is possible that students are able to learn about GERD yet consider it to be a trivial or a short-lived condition that is not severe enough to require medical attention (Jabbar et al., 2024; Alshaikh et al., 2021). In turn, these attitude tendencies are likely to lead to behavior, such as, the avoidance of lifestyle changes, the delay of medical attention, and the increasing reliance of using over-the-counter medications. The tendency to consider GERD to be a serious concern is likely to the keep individuals away from trigger foods, continue healthy habits, and seek medical assistance and use medications in both a personal and a clinical manner (Rahman et al., 2024; Yadlapati et al., 2022).

The term 'practice' describes the behavior GERD prevention and control that is actually adopted by students. These behaviors include the consumption of meals at specific times throughout the day, the avoidance of late night meals, the avoidance of spicy and oily meals, the consumption of healthier meals, the avoidance of sugar and caffeine laden carbonated beverages and maintaining an appropriate body weight, regular exercise, and sleep hygiene, and the seeking of medical assistance if and when GERD symptoms are experienced (Rasool et al., 2021; Sadafi et al., 2024). Reflux symptoms have been found to be closely related to the consumption of the aforementioned foods and beverages, the presence of spicy foods, oily foods, and an excessive consumption of tea, as well as other vermigenic habits such as smoking, the use of NSAIDs, and a delayed consultation. The assessment of 'practice' is of utmost importance given that students may possess the theoretical knowledge, but fail to put in into practice due to academic workload, hostel eating patterns, peer influence, or the absence of integrated health guidance (Jabbar et al., 2024; Rahman et al., 2024).

This study examines nursing students in Pakistan because of the limited available research on knowledge, attitudes, and practices concerning Gastroesophageal Reflux Disease and the lack

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research in tertiary care teaching environments and nursing students. Almost all other research studies that focus on the broader population, patients, medical students, and general university students, but nursing students are largely under-researched, despite their future roles in patient education and preventive health (Abdulrahman et al., 2024; Baklola et al., 2023). This local knowledge, attitudes, and practices study should help to identify misconceptions, negative attitudes and practices, and educational gaps among nursing students. This study may result in positive impacts on advancements related to the nursing curricula, promotion of students' health, improvement of clinical teaching, and development of evidence-based counseling in Pakistan (Katz et al., 2022; Rahman et al., 2024; Vaezi et al., 2021).

Methods

A descriptive cross-sectional study design was incorporated in this research to measure the KAP regarding gastro-oesophageal reflux disease (GERD) for the undergraduate nursing students at Jinnah Hospital, Lahore. The descriptive cross-sectional approach was incorporated because KAP studies typically measure phenomenon of interest only once, without the manipulation of any variables, thereby being the most suitable design for the present study. The total study population at Jinnah Hospital comprised 800 undergraduate nursing students. By utilizing the Raosoft sample size calculator, a sample size of 260 students was computed at a 95% confidence level, with a 5% margin of error and 50% response distribution. The sample was selected using a non-probability convenience sampling design considering students available and willing to participate. Informed consent was the only requirement. Participants were then nursing students that had completed at least one year of study and were present during the data collection period. All other students and those that were absent during the data collection were excluded.

Data Collection Procedure

Ethical approval for the study was first obtained from the institutional review board and permission was then obtained from the nursing directors and heads of departments. Then, permission for the study was obtained from the institutional authorities of the Jinnah Hospital and the nursing faculty. The eligible participants were approached in the classroom/clinical area, and were provided the explanation for the study. Informed consent was obtained from participants prior to the administration of the self-reported questionnaire. Students were directed to fill the questionnaire in a truthful manner and in a self-dependent manner. Questionnaires were collected after they were filled. To maintain the confidentiality of participants, identification codes were used. Privacy was maintained during the entire data collection process. Participants were fully informed of their right to withdraw at any time during the study without any consequences.

Data Analysis Procedure

To begin with, the collected data were assessed for completeness and were then encoded for entry into SPSS version 27. From then on, KAP scores and descriptive statistics were summarized for demographics. The results were categorized by gender and academic year and by KAP scores. Continuous variables were summarized using means and standard deviations. To examine associations between demographic variables and KAP levels, chi-square tests were employed. In this case, a p-value of less than 0.05 was considered statistically significant.

Results

Demographic Analysis

Table 1 shows the demographic distribution of 260 undergraduate nursing students who participated in the study. Most participants were aged 21–23 years, 138 (53.1%), indicating that the majority were in the usual age range for undergraduate nursing education. Female students represented the larger proportion, 212 (81.5%), which reflects the common gender distribution in nursing programs. Regarding academic year, the highest number of participants belonged to 3rd year, 96 (36.9%), followed by 2nd and 4th year students. Most students were hostel residents, 154 (59.2%), while 106 (40.8%) were

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day scholars. More than half of the participants, 176 (67.7%), had previous information about GERD, while 84 (32.3%) had no previous information. The main source of information was books or lectures, 82 (31.5%), followed by internet or social media, 56 (21.5%). This shows that academic sources played an important role in students' awareness of GERD. [Table 1]

Table 1

Frequency and Percentage Distribution of Demographic Characteristics of Undergraduate Nursing Students (n = 260)

Demographic Variables	Categories	Frequency (n)	Percentage (%)
Age	18–20 years	92	35.4
	21–23 years	138	53.1
	24 years and above	30	11.5
Gender	Male	48	18.5
	Female	212	81.5
Academic Year	2nd Year	82	31.5
	3rd Year	96	36.9
	4th Year	82	31.5
Previous information about GERD	Yes	176	67.7
	No	84	32.3
Source of information	Books/lectures	82	31.5
	Internet/social media	56	21.5
	Healthcare professionals	28	10.8
	Family/friends	10	3.8
	No previous information	84	32.3

Table 2 presents the distribution of knowledge, attitude, and practice levels regarding gastro-oesophageal reflux disease (GERD) among undergraduate nursing students. The findings revealed that the majority of students had moderate knowledge (48.5%), indicating an average understanding of GERD-related symptoms, risk factors, complications, and management. Similarly, most students demonstrated a neutral attitude (45.4%), suggesting uncertainty or lack of strong perceptions regarding GERD prevention and treatment. Regarding practice, nearly half of the participants (47.7%) exhibited fair practices, indicating occasional adherence to preventive measures but inconsistency in maintaining healthy behaviors. The proportion of students with good knowledge (25.4%), positive attitude (33.8%), and good practice (20.8%) was relatively low. These findings suggest that although students possess a basic awareness of GERD, there is considerable room for improvement, particularly in translating knowledge into positive attitudes and healthy practices.

Table 2: Distribution of Knowledge, Attitude, and Practice Levels Regarding GERD (n = 260)

Level	Knowledge n (%)	Attitude n (%)	Practice n (%)
Poor/Negative	68 (26.2)	54 (20.8)	82 (31.5)
Moderate/Neutral/Fair	126 (48.5)	118 (45.4)	124 (47.7)
Good/Positive	66 (25.4)	88 (33.8)	54 (20.8)
Total	**260 (100)**	**260 (100)**	**260 (100)**

Table 3 shows the descriptive statistics of knowledge, attitude, and practice scores regarding GERD among undergraduate nursing students. The mean knowledge score was 12.84 ± 3.21 out of a maximum score of 20, indicating a moderate level of understanding of GERD. The mean

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attitude score was 27.36 ± 5.42 out of 40, reflecting a generally neutral to moderately positive attitude toward the disease and its prevention. The mean practice score was 18.92 ± 4.18 out of 30, suggesting fair preventive and management practices among the participants. The standard deviation values indicate variability in students' responses, demonstrating that while some students had high levels of knowledge, positive attitudes, and good practices, others showed deficiencies in these areas. Overall, the results support the categorical findings and highlight the need for educational interventions to improve all aspects of GERD-related awareness and behavior.

Table 3: Descriptive Statistics of Knowledge, Attitude, and Practice Scores (n = 260)

Variable	Minimum Score	Maximum Score	Mean ± SD
Knowledge Score	4	20	12.84 ± 3.21
Attitude Score	8	40	27.36 ± 5.42
Practice Score	6	30	18.92 ± 4.18

Table 4 presents the association between knowledge, attitude, and practice levels and selected demographic variables. The results indicate that academic year was significantly associated with knowledge level ($p = 0.043$), suggesting that students in higher academic years possessed better knowledge regarding GERD due to increased educational exposure. Previous information about GERD showed a significant association with knowledge ($p = 0.001$), attitude ($p = 0.001$), and practice ($p = 0.008$), indicating that prior awareness positively influenced students' understanding, perceptions, and preventive behaviors. Residence was significantly associated with practice level ($p = 0.040$), implying that living conditions or environmental factors may affect lifestyle behaviors related to GERD prevention. However, age and gender were not significantly associated with any of the KAP domains, as all p-values exceeded 0.05. These findings emphasize the importance of educational exposure and prior information in improving GERD-related knowledge, attitude, and practice among nursing students.

Table 4: Association of Knowledge, Attitude, and Practice with Demographic Variables

Demographic Variable	Knowledge p-value	Attitude p-value	Practice p-value
Age	0.266	0.363	0.411
Gender	0.597	0.634	0.656
Academic Year	**0.043***	0.067	0.094
Residence	0.675	0.807	**0.040***
Previous Information about GERD	**0.001***	**0.001***	**0.008***

*Significant at $p < 0.05$

Discussion

The present study was aimed to evaluate knowledge, attitude and practice of gastro-oesophageal reflux disease among the undergraduate nursing students of Jinnah Hospital Lahore. The results indicated that majority of the respondents had moderate knowledge, neutral attitude and fair practice about GERD. This pattern implies that students' awareness of the disease was basic and did not show a satisfactory level in terms of understanding, perception, and preventive behaviour. This is in line with the findings by Sankari et al. (2025) that many participants had heard about GERD, but only a small number had sufficient knowledge of it. This indicates that awareness is not enough to understand the cause, risk factors, complications and treatment of GERD.

Demographic data revealed the age range of 21–23 years, which is the typical age of undergraduate

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nursing students. Clinically this age group is important as they are often exposed to risk factors associated with GERD like irregular meal patterns, academic pressure, eating fast foods, consumption of caffeine and poor sleep patterns. This was also echoed by Mu'taz et al. (2024) who conducted a study on medical students and reported similar high prevalence rates. The current study finds agreement with this worry, as it demonstrates that although students in the health care field are expected to have a stronger education and knowledge about GERD, they clearly do not.

The study revealed that most of the subjects were females, which according to the study corresponds to the gender distribution of nursing education. The present study did not reveal any significant differences in knowledge, attitude and practice based on gender. The results indicate that there is a greater association between GERD awareness and behaviour related factors (educational exposure & personal habits) than with gender. Zafar et al. (2024) noted medical and dental students experience GERD and that medication use and family history are significant associated factors, not just gender. This suggests that biological sex may not be the best predictor of biological sex-related knowledge or practice among healthcare students regarding GERD.

The results showed that 67.7% of the students had prior knowledge of GERD and 32.3% of the students did not have any prior information of GERD. The previous information was significantly correlated with knowledge, attitude and practice suggesting that the prior exposure of information on GERD had positive influence on students' knowledge and behaviour. Similarly, Rahman et al. (2024) found that better exposure to EBP and greater knowledge and attitudes were also noted among undergraduate nursing students. This validates the idea that organized, academic and clinical knowledge can enhance students' understanding and action with common health challenges like GERD.

Books, lectures, and internet and social media were the most frequent sources of information. This means that traditional academic learning is a significant source of knowledge about health for nursing students. Internet and social media were also apparent and can be beneficial, but can also lead students to incomplete or inaccurate information. Rasool et al. (2021) observed that there is a lack of awareness regarding GERD among adults in Pakistan, meaning that the information sources do not necessarily give complete information and knowledge. Therefore, nursing education should ensure that the content of GERD is taught by evidence-based lectures, clinical teaching and supervised learning.

The knowledge results obtained were that 48.5% of students had moderate knowledge, 26.2% of students had poor knowledge, and 25.4% of students had good knowledge. It means that almost half the students had a moderate knowledge about GERD and significant portion of students had less knowledge. In addition, Sadafi et al. (2024) noted that knowledge about risk factors and complications associated with GERD is still low in students and adults. The results of the present study corroborate the fact that although students are in the healthcare sector, they also exhibited relevant gaps in the knowledge they had, which highlights the need for special teaching interventions.

The moderate knowledge level in this study could be attributed to less attention being given to GERD in undergraduate nursing education. Students may only learn about gastrointestinal disorders; they will not be taught about risk factors, complications or prevention of GERD in detail. Vaezi et al. (2021) pointed out that the management of GERD should be based on accurate diagnosis, lifestyle modifications, rational use of medications and detection of alarm symptoms. The knowledge of nursing students is weak in these areas, and the gastrointestinal nursing education should be strengthened so as to enable the students to have strong patient counselling ability in the future.

The results of attitude findings that 45.4% students had neutral attitude, 33.8% had positive attitude and 20.8% had negative attitude towards GERD. This indicated that students did not have a strong understanding of GERD as a severe and preventable condition. Tian et al. (2024) found that educational interventions had a beneficial effect on patients' attitudes and adherence to

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GERD management; it may be possible to improve the attitudes of students in the same way. Based on the findings of this study, it is recommended that the nursing students need structured learning to deepen their understanding of the seriousness of GERD and preventability.

Many participants had a neutral attitude possibly because GERD is perceived as a minor acidity issue. This perception can lead to a decreased motivation to change lifestyles and seek medical advice at an appropriate time. Patel et al. (2024) emphasized the significance of evidence-based management of GERD and the understanding of medications and non-pharmaceutical treatment methods. The present study is different from the clinical guidance, because not all students had the attitude clearly positive, it was evident that it was necessary to take into account and teach them the seriousness of the disease and the importance of prevention.

The analysis of the practice findings revealed that 47.7% of students practiced well, 31.5% of the students experienced poor practice and were only 20.8% good practice. This means that GERD-preventive behaviours were not always adhered to. Rasool et al., 2021 noted that spicy foods, soft drinks, smoking, high BMI and use of NSAIDs are modifiable risk factors for GERD. The findings of the present study agree with the importance of the findings above, since similar risks can be possible for students if they are involved in fair and poor practices. Students in the nursing program may be familiar with GERD, but may not always follow a diet and lifestyle change.

The low percentage of good practice indicates that there is a knowledge to behaviour gap. Students may be aware of the risk factors of GERD but are unable to stop engaging in unhealthy activities because of overburdened academic load, the routine of hostel life, clinical work or peer influence. Sadafi et al. (2024) noted that obesity, physical inactivity, smoking and dietary habits are strongly associated with GERD. The present study has been found to be consistent with this evidence as there were sub-optimal practices regarding lifestyle and diet among nursing students which indicates the need for behaviour change interventions.

Academic year was significantly correlated with knowledge, but not attitude and practice in the study. This means that as the students are attaining more academic years, they may be better informed but this does not necessarily translate to good practice and a positive attitude. The study results by Rahman et al. (2024) confirmed that participants' knowledge towards behavioral changes might be enhanced through educational progression, but they need further support. This discovery highlights the need to build on the practical aspects of behaviour as well as theoretical. The previous information about GERD was significantly associated with knowledge, attitude and practice. This indicates that students who have previously learned about GERD related topics showed higher understanding of GERD, appropriate perception, and practice. The authors Mu'taz et al (2024), concluded that medical students who had previously known about GERD had better recognition of risk factors and symptoms. The current study finds that structured educational interventions, digital learning materials and counselling in the clinic can improve the KAP of students in nursing.

An association between resident in, and practice was seen which suggests that residents' housing makes a significant difference to GERD behaviours. The students living in a hostel may be provided with irregular food times, restricted food choices, late night meals and academic pressure and day scholars may have different schedules. Rashid et al. (2024) indicated that students' lifestyles (food intake and time), are related to GERD prevalence. Confirming this, the present study found that there were differences in practice scores across residences, with environment having an effect on preventive behaviours.

The results are significant for nursing education and for the health promotion of students. The moderate knowledge and neutral attitude with little practice means that structured teaching and behavioural intervention about GERD is needed for the undergraduate nursing students. Slater et al. (2021) emphasized guidelines and correct management of GERD. Yadlapati et al. (2022) emphasized the role of personalized GERD management and lifestyle changes and evidence-

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based treatment. Nursing students need to learn about both the pharmacological and non-pharmacological treatment of GERD to use this knowledge personally and professionally.

The present study offers local evidence from the Jinnah Hospital Lahore about the knowledge, attitudes and practices of the undergraduate nursing students with regard to GERD. The results of this study corroborated with the studies reporting GERD as a common health problem among school children and highlighting the lack of awareness, unhealthy lifestyle habits and perception of the disease. Mu'taz et al (2024), Zafar et al (2024), and Rasool et al (2021) highlighted that student lifestyle, medication use, and local dietary factors are important in the risk of GERD. Based on the present study, it is recommended that focused educational interventions, strengthening of curriculum and student wellness programs focusing on GERD prevention, symptom recognition, lifestyle modification, and safe medical consultation is necessary.

Conclusion

The study revealed that undergraduate nursing students at Jinnah Hospital Lahore had moderate knowledge, neutral attitude, and fair practice regarding gastro-oesophageal reflux disease. While most students were aware of GERD and its risk factors, significant gaps existed in translating knowledge into positive attitudes and preventive practices. Academic exposure and previous information about GERD were significantly associated with higher knowledge and better practices. Residence also influenced practice levels, indicating environmental factors play a role. Overall, the findings highlight the need for structured educational interventions to improve GERD-related awareness, perceptions, and healthy lifestyle behaviours among nursing students.

Recommendations

1. Incorporate targeted GERD-focused modules into the undergraduate nursing curriculum to strengthen knowledge and practical skills.
2. Conduct workshops and seminars emphasizing lifestyle modification, symptom recognition, and safe medication practices.
3. Use digital platforms and mobile health tools for continuous student education on GERD management and prevention.
4. Encourage students to monitor and modify personal dietary habits and daily routines to prevent GERD.
5. Implement mentorship and peer-education programs where senior students guide juniors on evidence-based GERD management.

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