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ORIGINAL ARTICLE

Quality of life and GERD incidence in medical student: A cross-sectional study

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Abstract

Medical students are highly susceptible to GERD due to the intense pressure and hectic pace of medical education. This cross-sectional study included a total of 250 students. A questionnaire was used to collect the research data. The questionnaire sheet was given by the researcher to the research subject, and it was expected that the research subject would fill in the answers on the questionnaire sheet honestly. Data were analyzed using the chi-square test and logistic regression analysis. The results showed a significant association between knowledge (p=0.000), diet (p=0.000), and coffee consumption (p=0.002) and GERD among medical students. Stress was not a significant risk factor in this study (p=0.127). Regression modeling showed that improving diet can minimize the risk of GERD by a factor of one. It can be concluded that subjects with poor eating habits have a 1-time risk of suffering from GERD based on the PR value (0.916). To manage and alleviate GERD symptoms, it is essential to consider these lifestyle factors and make appropriate changes such as adopting a healthy diet, quitting smoking, managing stress, and maintaining a regular exercise routine.

Keywords: knowledge, eating habits, coffee consumption, stress, GERD

Introduction

Gastroesophageal reflux disease (GERD) is a pathological condition caused by prolonged contact between reflux and the esophageal mucosa and decreased resistance of the esophageal mucosal tissues.[1–4] Patients with GERD generally experience heartburn and burning sensations emanating from the retrosternal region, chest, neck, and throat. This condition causes GERD patients to experience sleep disturbance, which interferes with daily activities and can even lead to psychological problems.[5,6] The causes of GERD include various factors such as anatomical and physiological abnormalities, genetics, dietary patterns, stress, certain medications, and obesity.[1,2,7] Several previous studies have reported obesity, physical inactivity, and smoking as risk factors associated with developing GERD.[8–10]

Undergoing long and complicated medical education puts students at a high risk of stress. In addition, they are susceptible to physical fatigue associated with high-intensity learning activities, which can lead to sleep disturbances such as sleep deprivation, inadequate sleep quality, and daytime sleepiness.[11,12] Disturbed sleep patterns may be predictors of GERD, as shown in several previous studies.[12–14] The busy lifestyle of medical students can lead to irregular eating habits, with some literature reporting a tendency for students to gain weight [15,16] Irregular eating habits, late night snacking, and overeating can lead to the risk of developing GERD.[17]

Students tend to drink coffee at night to prevent drowsiness when repeating lectures and doing homework. Even now, coffee drinking has become a trend and lifestyle among students.[18] Two studies in Iran have shown that coffee consumption is a risk factor for GERD.[19,20] Students are also prone to stress

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due to various academic demands; therefore, it can be a stressor for students. Stress can worsen heartburn symptoms in patients with GERD by increasing the perceptual response to intra-esophageal acid exposure.[21,22] Previous studies have reported an increase in the frequency of GERD symptoms under certain stressful conditions.[23] This study aimed to analyze the risk factors for GERD experienced by medical students of Universitas Prima Indonesia.

Method

The research was conducted at the University of Prima Indonesia from February to May 2023. This study had a cross-sectional design. A total of 250 medical students at the Faculty of Medicine, Universitas Prima, Indonesia participated in this study. All the participants agreed to participate in the study. A questionnaire was used to collect the research data. The questionnaire sheet was given by the researcher to the research subject, and it was expected that the research subject would fill in the answers on the questionnaire sheet honestly. Independent variables represent those that have an influence or theoretical possibility of influencing other variables. The independent variables included student behavior, stress, diet, and coffee consumption. The dependent variable was influenced by the other variables. The dependent variable was the incidence of GERD among medical students. A univariate analysis was performed to obtain an overview of the frequency distribution of each variable. Meanwhile, the Chi-square test was used to analyze the relationship between risk factors and disease burden. A logistic regression test was used to identify the independent variable that had the most dominant relationship with the dependent variable.

Table 1. Frequency distribution of risk factors and incidence of GERD (n=250)

Variable	Frequency	Percentage
Knowledge		
Lack	185	74.0
Good	65	26.0
Eating habits		
Irregular	30	12.0
Regular	220	88.0
Coffee consumption		
Frequent	51	20.4
Not	199	79.6
Stres		
No	41	16.4
Yes	209	83.6
GERD		
No	103	41.2
Yes	147	58.8

Results

Of the 250 students surveyed, 185 (74.0%) reported that they were unaware that GERD had occurred. Regarding diet, more than half (88.0%) reported regular eating habits. Coffee consumption was not a habit of students (79.6%). Stress was experienced by the majority of participants, with 209 people (83.6%) reporting high levels of stress. By contrast, half of the students did not experience GERD (see Table 1).

Table 2. Associations between knowledge, eating habits, coffee consumption, and stress with GERD incidence

Predictors	GERD				*p*
	Yes		No		
	n	%	n	%	
Knowledge					
Lack	38	15.2	147	58.8	0.000
Good	65	26.0	-	-	
Eating habits					
Irregular	22	8.8	8	3.2	0.000
Regular	81	32.4	139	55.6	
Coffee consumption					
Frequent	72	28.8	127	50.8	0.002
Not	31	12.4	20	8.0	
Stres					
No	12	4.8	29	11.6	0.127
Yes	91	36.4	118	47.2	

Table 2 shows that knowledge, eating habits, coffee consumption, and stress levels were significantly associated with the incidence of GERD among medical students. The independent variables selected were those with a p-value of <0.05. A lack of knowledge about GERD was associated with a higher percentage of GERD cases (15.2%). Irregular eating habits were associated with a higher percentage of patients with GERD (8.8%). Frequent coffee consumption was associated with a higher percentage of patients with GERD (28.8%). Stress was associated with a higher percentage of patients with GERD (36.4%). Four variables were identified as having $p < 0.250$, namely, knowledge, eating habits, and coffee consumption, all of which were included in the multivariate analysis. The analysis showed that eating habits had the strongest relationship with GERD incidence in medical students. It can be concluded that subjects with poor eating habits have a 1-time risk of suffering from GERD based on the PR value (0.916) (see Table 3).

Discussion

Table 3. Logistic regression model

Variable	Model 1 p; PR (95%CI)
Knowledge	0,000; 0,840 (0,021 - 1,200)
Eating habits	0,000; 0,916 (0,019 - 2,500)
Coffee consumption	0,020; 0,820 (0,024 - 1,000)

The study found the prevalence of GERD among university students to be 41.2%, considerably higher than that recorded in several Indonesian universities for this population, which were 16,8%[24], 10,45%[25], and 34,2%[26], respectively. The study findings indicate that the occurrence of GERD among the study participants was linked to their knowledge, eating habits, and coffee intake, while stress levels did not appear to have a substantial impact. Based on the results of the regression modeling, it appears that eating habits have the most significant influence on GERD in medical students.

Knowledge plays a significant role in health behavior changes and disease prevention. Students who possess some knowledge of GERD tend to manage their lifestyle and diet more carefully, thus reducing the likelihood of developing GERD. One study reported that individuals with a limited understanding of GERD are more susceptible to experiencing GERD.[27] Furthermore, another study determined that individuals with higher education levels have a reduced prevalence of GERD and a better quality of life. Higher education is associated with enhanced understanding.[28,29] Knowledge motivates people to acquire health-related knowledge, which can positively influence their conduct. However, a lack of knowledge regarding GERD does not necessarily mean that an individual will experience GERD symptoms. In fact, educational programs have been shown to increase disease knowledge and improve patient outcomes.[30]

In this study, the incidence of GERD was primarily attributed to eating habits. A study in Turkey confirmed this.[31] A systematic review showed that the risk of GERD is increased in individuals who are fond of citrus, soft drinks, spicy foods, and fried foods.[32] Modifying one's eating habits and lifestyle can be helpful in both preventing and treating GERD.[33–35] Interestingly, contrary to other studies[31,36,37], coffee consumption was found to be associated with GERD experienced by the subjects in this particular study. However, a study has indicated that frequent coffee intake can increase the exposure of the lower esophagus to stomach acids. People often report experiencing heartburn after coffee consumption. Coffee stimulates the secretion of gastrin and acid, and may impact esophageal function which leads to a decrease in basal lower esophageal sphincter (LES) pressure and distal esophageal contraction, both known to contribute to reflux causing the rise of gastric contents into the esophagus.[38]

The study found that stress experienced by students was the only non-significant risk factor. This finding aligns with a 10-year study conducted in Sweden.[39] Furthermore, depression experienced by individuals only exhibited an association with the severity of GERD symptoms, such as pain or burning in the solar plexus.[40] Despite this, there is a requirement for students to adopt strategies and behavioral changes to manage stress incurred during medical education. Good stress management will improve the quality of life of medical students and avoid the threat of disease.[41]

Conclusion

The results of this study demonstrated a noteworthy correlation between knowledge, eating habits, coffee consumption, and GERD among medical students. Stress was not a significant risk factor in this study. The regression model showed that a change in eating habits reduced the risk of GERD. To mitigate GERD among medical students, it is imperative to adopt healthier eating habits and lifestyles. Furthermore, imparting health information could encourage students to be more attentive to and embrace healthy practices, thus enhancing their overall quality of life.

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