The Relationship Between Eating Habits and Gastritis Incidence Among Female Students at Al-Barokah Sruni Islamic Boarding School

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Abstract: Gastritis is an inflammation of the stomach lining often triggered by unhealthy eating habits or irregular eating patterns. This study aims to analyze the relationship between eating habits (meal frequency, portion sizes, and types of food) and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School. Poor eating habits, such as irregular meals, consuming overly spicy, fatty foods, or foods containing high caffeine, are known to cause digestive issues, including gastritis. This study uses an observational analytic design with a cross-sectional approach. The sample consists of 55 female students selected using simple random sampling from a population of 65 students. Data were collected from September to October 2024 and analyzed using the Phi coefficient test. The results indicate a significant relationship between meal frequency (ρ-value = 0.001), portion sizes (ρ-value = 0.002), and types of food (ρ-value = 0.004) with the occurrence of gastritis, with each relationship categorized as moderate. Of the total of 55 female students, 24 (43.64%) had gastritis, while 31 (56.36%) did not have gastritis. Based on these findings, it can be concluded that poor eating habits increase the risk of gastritis among the students. It is recommended that the pesantren provide education on healthy eating habits and stress management to prevent the occurrence of gastritis among the students

1 INTRODUCTION

Gastritis, or inflammation of the gastric mucosa, is a common health problem in Indonesia and worldwide. According to data from the Indonesian Ministry of Health, gastritis is among the top ten most common diseases in hospitals, with a prevalence of 274,396 cases in 2020. A study by Lestary et al. (2023) reported that the prevalence of gastritis in East Java reached 44.5%. Globally, the World Health Organization reported gastritis prevalence in countries such as the United Kingdom (22%) and China (31%). Gastritis is often caused by poor eating habits, including irregular meal frequency, inappropriate portion sizes, and consumption of certain types of food that irritate the stomach lining. These unhealthy eating patterns have become a major concern in health research.

Irregular meal frequency is one of the main risk factors for gastritis. A study by Irwansyah et al. (2023) showed that people who skipped meals had twice the risk of gastritis compared to those who ate regularly. Data from Firdaus et al. (2023) also support this, showing that 65% of gastritis patients

had irregular eating patterns, particularly skipping breakfast. This habit is common among adolescents and young adults, including pesantren students with tight daily schedules. Other studies have also found that individuals who eat fewer than three times a day are more vulnerable to increased stomach acid, which irritates the gastric wall. Therefore, maintaining regular meal frequency is an important step in preventing gastritis

Inappropriate portion sizes are another major contributor to gastritis. A study by Rimbawati et al. (2022) found that 57% of gastritis patients had the habit of eating very small portions, especially at breakfast. This causes the stomach to continue producing acid without food to neutralize it, which worsen gastric irritation. On the other hand, eating large portions at once may trigger dyspepsia and gastritis due to excessive gastric workload. Another study by Sari et al. (2021) reported that individuals who failed to regulate portion sizes properly had a 1.8 times higher risk of developing gastritis. Thus, balanced portion sizes according to daily caloric needs are essential for preventing gastritis.

The types of food consumed also play a significant role in gastritis risk. Spicy, acidic, and fatty foods are known to stimulate excessive gastric acid secretion. A study by Firdaus et al. (2023) reported that 60% of gastritis patients regularly consumed spicy food. In addition, low intake of fiber-rich foods such as fruits and vegetables also contributed to digestive problems. Data from Khusna et al. (2024) showed that individuals who failed to meet daily fiber requirements had a 1.5 times higher risk of gastritis compared to those who met their fiber intake. Therefore, choosing healthy and balanced foods is an important preventive measure against gastritis.

Overall, eating patterns including meal frequency, portion size, and types of food are the main factors in the incidence of gastritis. Studies by Lestary et al. (2023) and Irwansyah et al. (2024) demonstrated that poor eating habits—such as skipping meals, inadequate portion sizes, and unhealthy food choices—significantly increase gastritis risk. Both global and national data show that gastritis is highly prevalent, much of which can be prevented through improved dietary habits. By understanding the relationship between eating behavior and gastritis, more effective interventions can be designed to reduce gastritis incidence, particularly among productive-age groups such as pesantren students.

2 METHOD

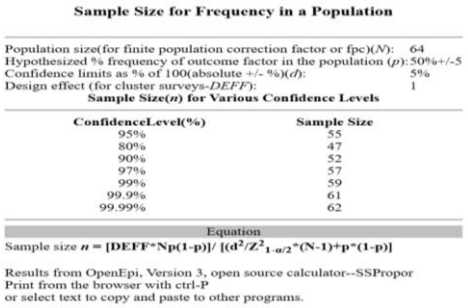
Research Design

This study used an observational analytic method with a cross-sectional design. The design was chosen to determine the relationship between eating habits (meal frequency, portion size, and type of food) and the incidence of gastritis among female students at Pondok Pesantren Al-Barokah Sruni. The research was conducted in September–October 2024.

Population and Sample

The study population included 65 female students of Al-Barokah Sruni Islamic Boarding School aged 15–18 years. The sample was determined using a simple random sampling technique, resulting in 55 respondents. Inclusion criteria were: (1) female students who had lived in the

pesantren for at least six months, (2) willing to become respondents, and (3) present at the time of data collection. Exclusion criteria were students who were sick or absent during data collection.



Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*): 64
Hypothesized % frequency of outcome factor in the population (*p*): 50%+/-5
Confidence limits as % of 100(absolute +/- %)(*d*): 5%
Design effect (for cluster surveys-*DEFF*): 1

Sample Size(*n*) for Various Confidence Levels

ConfidenceLevel(%)	Sample Size
95%	55
80%	47
90%	52
97%	57
99%	59
99.9%	61
99.99%	62

Equation

Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Results from OpenEpi, Version 3, open source calculator--SSPropor
Print from the browser with ctrl-P
or select text to copy and paste to other programs.

Figure 1 Sample Size

Instruments

The research instrument used was a structured questionnaire that had been tested for validity and reliability. The questionnaire consisted of questions on meal frequency, portion size, and types of food consumed. The dependent variable (gastritis incidence) was measured through self-reported symptoms consistent with gastritis characteristics.

Time and Place

This research was carried out at Al-Barokah Sruni Islamic Boarding School, Sidoarjo, East Java, during the period September–October 2024.

Data Collection

Primary data were obtained directly from respondents through filling out questionnaires under researcher supervision. The data collected included demographic characteristics, eating habits, and gastritis symptoms experienced.

Data Analysis

Data were analyzed using the Phi correlation test to determine the relationship between eating habits and the incidence of gastritis. The test results were considered significant if the p-value < 0.05. The strength of the correlation was categorized as weak, moderate, or strong.

Research Hypotheses

Meal Frequency

H0: There is no relationship between meal frequency and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

H1: There is a relationship between meal frequency and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

Portion Size

H0: There is no relationship between portion size and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

H1: There is a relationship between portion size and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

Food Types

H0: There is no relationship between food type and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

H1: There is a relationship between food type and the incidence of gastritis among female students at Al-Barokah Sruni Islamic Boarding School.

3 RESULT

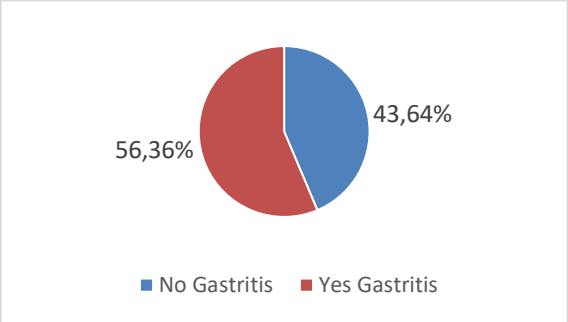


Figure 2 Distribution of Respondents Based on Gastritis Incidence

The diagram above illustrates the distribution of frequency and percentage of gastritis incidence among female students at Al-Barokah Islamic Boarding School is presented. Out of a total of 55 students, 24 (43.64%) experienced gastritis, while 31 (56.36%) did not. This indicates that the majority of students did not experience gastritis, although a considerable number were affected by the condition.

The assessment of gastritis incidence was based on the results of a questionnaire consisting of 16 questions. If the total score was 0–8 points, the respondent was categorized as not having gastritis, while a score of 9–16 points indicated the presence of gastritis.

Factor : Meal Frequency

Based on the results of the correlation test presented in Table 1, there is a significant relationship between meal frequency and gastritis incidence among the female students of Al-Barokah Sruni Islamic Boarding School. The correlation test using the Phi coefficient yielded a p-value = 0.001, which is smaller than $\alpha = 0.05$, indicating that H0 was rejected and H1 was accepted. This means that there is a significant relationship between meal frequency and gastritis incidence among the students. The correlation coefficient value obtained was $\Phi = 0.458$, which falls into the moderate category (0.25–0.50), showing that the worse the meal frequency, the higher the likelihood of students experiencing gastritis. The direction of the correlation is positive, meaning that poor meal frequency is strongly associated with the incidence of gastritis. Out of 55 students studied, 29 (52.73%) had poor meal frequency, while 26 (47.27%) had good meal frequency. The majority of students with poor meal frequency tended to experience digestive problems, including gastritis. This indicates that poor eating habits play a significant role in increasing the risk of gastritis among students.

Meal Frequency	Gastritis		Statistic Results
	Yes	No	
Poor	20 (36.36%)	9 (16.36%)	Phi Cor. = 0.458
Good	4 (7.27%)	22 (40.00%)	Sig = 0.001

Table 1 The relationship Between Meal Frequency and Gastritis Incidence

According to Amin et al. (2023), poor meal frequency, such as irregular eating or consuming unhealthy foods, can cause digestive disorders, including gastritis. This finding is also supported by Saraswati et al. (2022), who stated that poor eating habits can trigger stomach inflammation, which eventually leads to gastritis. This study is consistent with previous research by Rhisa et al. (2022), which showed a significant relationship between eating habits and gastritis incidence in the study population. However, the results of this study do not fully align with the findings of Febry et al. (2024), who did not

find a significant relationship between meal frequency and gastritis incidence.

Factor : Portion Size

Based on the results of the correlation test presented in Table 2, there is a significant relationship between portion size and gastritis incidence among female students at Al-Barokah Sruni Islamic Boarding School. The p-value obtained was 0.002, which is smaller than $\alpha = 0.05$, indicating that H0 was rejected and H1 was accepted. This means that there is a significant relationship between portion size and gastritis incidence among the students.The correlation coefficient values obtained were Phi = 0.414 and Cramer's V = 0.414, suggesting a moderately strong relationship between the two variables. This correlation shows that the poorer the portion size, the greater the likelihood of experiencing gastritis. The positive correlation indicates that inappropriate or irregular portion sizes contribute to an increased risk of gastritis among the students.

Portion Size	Gastritis		Statistic Results
	Yes	No	
Poor	18 (32.73%)	16 (29.09%)	Phi Cor. =0.414
Good	6 (10.91%)	15 (27.27%)	Sig = 0.002

Table 2 The relationship Between Portion Size and Gastritis Incidence

From the frequency distribution results in Table 2, the majority of students (61.82%) had poor portion sizes, which could affect their digestive health, including an increased risk of gastritis. This suggests that most students may have failed to manage their portion sizes properly, will potentially disrupting nutritional balance and worsening digestive conditions. Irregular and unbalanced portion sizes can impact the digestive system, particularly the stomach, contributing to digestive disorders such as gastritis. This study aligns with the theory presented by Firdaus et al. (2023), which states that irregular eating patterns and inappropriate portion sizes can increase the risk of digestive disorders. Therefore, proper portion control is essensial for students to regulate their portion sizes wisely to maintain digestive health and prevent diseases such as gastritis.

Factor : Food Types

Based on the results of the correlation test shown in Table 3, there is a significant relationship between food types and gastritis incidence among the students. The p-value obtained was 0.004, which is smaller than $\alpha = 0.05$, indicating that H0 was rejected and H1 was accepted. This means that food type has a significant association with gastritis incidence. The correlation coefficient values obtained were Phi = 0.386 and Cramer's V = 0.386, which indicate a moderate relationship between the two variables. The Contingency Coefficient value of 0.360 also supports this finding. This relationship suggests that the more students consumed unhealthy food types, the greater the likelihood of developing gastritis.

Food Types	Gastritis		Statistic Results
	Yes	No	
Poor	19 (34.55%)	17 (30.91%)	Phi Cor. = 0.386
Good	5 (9.09%)	14 (25.45%)	Sig = 0.004

Table 3 The relationship Between Food Types and Gastritis Incidence

From the frequency distribution in Table 3, the majority of students (60.00%) reported consuming unhealthy food types, which may significantly contribute to digestive health problems, particularly gastritis. The suggests that students' dietary choices play an important role in increasing the risk of gastritis, and unhealthy food types are a major contributing factor. This study supports the findings of Firdaus et al. (2023), who emphasized that frequent consumption of spicy and fatty foods is associated with a higher incidence of gastritis. It also aligns with Khusna et al. (2024), who reported that a lack of fiber intake increases susceptibility to digestive disorders. Therefore, promoting healthier food type choices is crucial for maintaining digestive health and preventing gastritis among students.

4 CONCLUSIONS

This study found a significant relationship between eating patterns (meal frequency, portion size, and food types) and gastritis incidence among female students at Al-Barokah Sruni Islamic Boarding School.

a. Meal Frequency: A significant correlation was observed (p = 0.001, Phi = 0.458, moderate positive correlation), indicating that lower meal frequency increases the risk of gastritis.
b. Portion Size: A significant relationship was found (p = 0.002, Phi = 0.414, moderate correlation), suggesting that inappropriate portion sizes elevate gastritis risk.
c. Food Types: A significant relationship was also identified (p = 0.004, Phi = 0.386, moderate correlation), showing that unhealthy food choices contribute to higher gastritis incidence.

These findings highlight the importance of structured nutrition education and meal scheduling programs in Islamic boarding schools to reduce gastritis prevalence.

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