SPICY FOOD AS A TRIGGERING FACTOR FOR DYSPEPSIA IN FEMALE ADOLESCENTS AT SMP NEGERI 3 TUBAN

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Abstract

Background: Dyspepsia syndrome is a common digestive disorder among adolescents, particularly females, and is influenced by dietary habits, including spicy food consumption. Spicy foods contain capsaicin, which can increase stomach acid production and irritate the gastric mucosa, potentially triggering dyspepsia symptoms. This study aims to examine the relationship between spicy food consumption and dyspepsia syndrome among female students at SMP Negeri 3 Tuban. **Method:** This study employed a descriptive correlational design with a cross-sectional approach. A total of 105 female students were selected using cluster sampling. Spicy food consumption was assessed using a Likert-scale questionnaire, while dyspepsia symptoms were measured using the Postprandial Distress Syndrome (PDS) scale. Data analysis was conducted using Spearman's correlation test. **Results:** The study found that 60% of respondents had a moderate level of spicy food consumption, while 65.7% experienced moderate dyspepsia symptoms. Statistical analysis showed a significant positive correlation between spicy food consumption and dyspepsia syndrome ($p = 0.000$, $r = 0.410$), indicating that higher spicy food consumption increases the likelihood of dyspepsia symptoms. **Conclusion:** There is a significant relationship between spicy food consumption and dyspepsia syndrome among female students. It is recommended that adolescents regulate their spicy food intake and adopt a balanced diet to prevent digestive issues. Schools and families should provide education on healthy eating habits to reduce the risk of dyspepsia.

Keywords: spicy food, dyspepsia syndrome, adolescents, dietary habits

INTRODUCTION

Female Adolescents Are More Susceptible to Dyspepsia Compared to Male Adolescents (Wibawani et al., 2021). Dyspepsia is a common digestive disorder affecting various age groups, including adolescents. It is characterized by symptoms such as epigastric pain, bloating, nausea, and a feeling of fullness (Mulya & Sumargi, 2016). Dyspepsia can disrupt daily activities, weaken immunity, and increase disease risk. If left untreated, it may worsen health

conditions, making proper management essential (Laili, 2020).

According to the World Health Organization, the global incidence of dyspepsia syndrome has increased by 73%. In SEARO (South East Asian Regional Office) countries, the incidence rose by 42%, while in the United States and Oceania, it varies between 5-43% (Yulia Yesti et al., 2023). Studies on the general population indicate that 15-30% of adults have experienced dyspepsia syndrome, with Western countries (Europe) reporting a prevalence of around 7-41% (Laili, 2020). A global WHO review found dyspepsia incidence rates of 22% in the UK, 31% in China, 14.5% in Japan, 35% in Canada, and 29.5% in France (Saad et al., 2024). A multi-center study in Asia (China, Hong Kong, Indonesia, Malaysia, Singapore, Taiwan, Thailand, and Vietnam) found that 43% of patients had dyspepsia syndrome (Anglena et al., 2024). In Indonesia, dyspepsia syndrome ranked 10th among the most common inpatient diseases in 2019, with 34,029 cases or 1.59% of hospitalizations (Kemenkes RI, 2023).

Dyspepsia syndrome is influenced by both organic and functional factors, including Helicobacter pylori infection, NSAID use, gastric motility disorders, and stress. Unhealthy eating habits, spicy food consumption, and smoking can also exacerbate symptoms (Saputra, 2024).

Adolescents, particularly females, frequently consume spicy foods due to habit, social trends, or personal preference (Savira et al., 2023). Spicy food can increase stomach acid production and irritate the gastric mucosa, potentially triggering dyspepsia symptoms (Hidayat et al., 2023). A study found that excessive spicy food consumption can lead to digestive issues, especially for individuals with high food sensitivity (Gonlachanvit, 2010).

Spicy foods are rich in capsaicin, the compound responsible for their heat, which has both beneficial and adverse effects. While capsaicin can boost metabolism and aid in calorie burning, excessive consumption may irritate the digestive tract. This irritation can trigger dyspepsia symptoms, such as

epigastric pain, bloating, and nausea, due to increased stomach acid production (Li & Page, 2022). Tolerance to spicy foods varies among individuals; some can consume them without issues, while others, especially those with GERD, may experience dyspepsia. Recognizing personal tolerance levels and symptom triggers is essential (Soumena et al., 2024).

To prevent dyspepsia syndrome caused by spicy food, female adolescents should adopt a healthy, balanced diet, stay hydrated, and opt for home-packed meals or school cafeteria food that meets safety standards. Moderate consumption of spicy food is not harmful, but excessive intake can lead to health problems. Therefore, female adolescents should make informed dietary choices based on their body's tolerance to spice (Habsari et al., 2024).

This study aims to examine the relationship between spicy food consumption and the incidence of dyspepsia syndrome among female adolescents at SMP Negeri 3 Tuban.

METHOD

This study employs a descriptive correlational design with a cross-sectional approach to examine the relationship between spicy food consumption and the incidence of dyspepsia among 140 female adolescents at SMP Negeri 3 Tuban, with a selected sample of 105 participants. The sample was chosen using probability sampling with a cluster sampling technique. Data on spicy food consumption were collected through a questionnaire using a Likert scale (0–4) to assess the frequency and intensity of spicy food intake. A score of 0–17 indicates low consumption, 18–35 moderate, and 36–50 high. Meanwhile, dyspepsia incidence was measured using the Postprandial Distress Syndrome (PDS) scale through six statements rated on a Likert scale (0–4). A score of 0–17 indicates mild symptoms, 18–35 moderate, and 36–50 severe. The study is scheduled for January 2025, with data analysis conducted using the Spearman test via SPSS software.

RESULT AND DISCUSSION

Table 1.Distribution of Respondents Based on Spicy Food Consumption Among 7th Grade Students at SMP Negeri 3 Tuban in January 2025

No.	Spicy Food Consumption	ƒ	Percentage (%)
1.	High	4	3,8
2.	Moderate	63	60
3.	Low	38	36,2
	Total	105	100

Source: Primary Research Data, 2025

Based on Table 1, the majority of respondents consumed spicy food at a moderate level, with 63 students (60%).

Table 2. Distribution of Respondents Based on the Incidence of Dyspepsia Syndrome Among 7th Grade Students at SMP Negeri 3 Tuban in January 2025

No.	Dyspepsia Syndrome	ƒ	Percentage (%)
1.	High	11	10,5
2.	Moderate	69	65,7
3.	Low	25	23,8
	Total	105	100

Source: Primary Research Data, 2025

Based on Table 2, the majority of respondents experienced moderate dyspepsia syndrome, with 69 students (65.7%).

Table 3. Cross-Tabulation of the Relationship Between Spicy Food Consumption and Dyspepsia Syndrome Among 7th Grade Students at SMP Negeri 3 Tuban in January 2025

Spicy Food Consumption	Dyspepsia Syndrome			Total
	High	Moderate	Low	
High	3 (75%)	1 (25%)	0 (0%)	4 (100%)
Moderate	4 (6,3%)	58 (84,1%)	1 (1,6%)	63 (100%)
Low	3 (7,9%)	10 (26,3%)	25 (65,8%)	38 (100%)
Total	11 (10,5%)	69 (65,7%)	25 (23,8%)	105 (100%)
Sig. (2-tailed)=0,000; r=0,410				

Source: Primary Research Data, 2025

Table 3 shows that respondents with high dyspepsia syndrome were mostly found in the high spicy food consumption category, with 3 students (75%). Meanwhile, respondents with low dyspepsia syndrome were mostly found in the low spicy food consumption category, with 25 students (65.8%).

Statistical analysis revealed a significance value of $p = 0.000$ ($p < 0.05$), indicating a highly significant relationship between spicy food consumption and the incidence of dyspepsia syndrome. The correlation coefficient (r) = 0.410 indicates a moderate and positive relationship, meaning that higher spicy food consumption is associated with a greater likelihood of experiencing dyspepsia.

These findings align with Savira et al. (2023) which state a significant relationship between spicy food consumption and dyspepsia syndrome. Frequent spicy food consumption increases the risk of digestive issues, including dyspepsia, as it can irritate the stomach lining and increase acid production.

Dyspepsia syndrome is a common digestive disorder, especially among adolescents. Female adolescents are more susceptible than males due to hormonal factors, dietary habits, and digestive sensitivity (Sari et al., 2021)One major trigger of dyspepsia is high spicy food consumption, as spicy foods contain capsaicin, an active compound in chili peppers that can irritate the digestive system if consumed excessively (Hidayat et al., 2023).

Capsaicin stimulates Transient Receptor Potential Vanilloid 1 (TRPV1) receptors in the digestive tract, which detect heat and pain. Activation of these receptors increases stomach acid production and disrupts acid-base balance, leading to stomach irritation and dyspepsia symptoms such as heartburn, bloating, nausea, and frequent belching (Du et al., 2019). Moreover, excessive spicy food consumption can also cause delayed gastric emptying, worsening dyspepsia symptoms (Savira et al., 2023). A study by Xiang et al. (2021) found that high capsaicin intake slows gastric motility, causing food to

remain in the stomach longer, leading to a feeling of fullness in individuals prone to dyspepsia.

Additionally, Amelia (2022) found a significant relationship between spicy food consumption and digestive complaints, where individuals who frequently consume spicy food have twice the risk of experiencing digestive issues, including dyspepsia. This is due to capsaicin's effect on stomach acid balance and motility, contributing to symptoms like burning pain, nausea, and heartburn (Laili, 2020).

Beyond physiological factors, hormonal fluctuations in female adolescents can increase their susceptibility to dyspepsia. Variations in estrogen and progesterone levels during the menstrual cycle can affect gastrointestinal motility and increase stomach sensitivity to irritation (Meleine & Matricon, 2014). Kim and Kim (2020) found that females have a higher prevalence of functional digestive disorders, including dyspepsia, compared to males. Additionally, social trends and lifestyle habits influence adolescents' dietary patterns. Many female adolescents consume spicy foods due to social trends or personal preferences, increasing their risk of dyspepsia if not balanced with a healthy diet (Hidayat et al., 2023).

Stress and anxiety, which are more common in female adolescents, also contribute to digestive issues through the gut-brain axis, a connection between the brain and digestive system (Foster et al., 2017). Sari et al. (2021) found that female adolescents were more likely to experience dyspepsia after consuming spicy food than males, primarily due to hormonal and lifestyle factors. Herman and Lau (2020), reported that 60% of individuals with dyspepsia syndrome experienced worsened symptoms after consuming spicy food, especially those with a history of functional dyspepsia.

Based on these findings and physiological mechanisms, spicy food consumption should be controlled, especially for female adolescents who are more vulnerable to digestive disorders. A balanced diet, adequate water intake, and limiting spicy food consumption can help prevent dyspepsia syndrome.

Moreover, education on the risks of excessive spicy food consumption should be provided in schools and families. Given the popularity of spicy food trends, it is essential for adolescents to understand their body's tolerance levels and avoid excessive intake.

CONCLUSION AND SUGGESTION

This study found a significant relationship between spicy food consumption and the incidence of dyspepsia syndrome among adolescents. Statistical analysis revealed a p-value of 0.000 ($p < 0.05$) and $r = 0.410$, indicating a moderate positive correlation between the two variables.

Based on these findings, it is recommended that spicy food consumption be controlled, especially among female adolescents who are more prone to digestive issues due to hormonal factors and lifestyle habits.

ACKNOWLEDGMENT

We would like to express our deepest gratitude to the Principal of SMP Negeri 3 Tuban for their invaluable support during this research. Our thanks also go to the teachers and staff of SMP Negeri 3 Tuban for their cooperation and assistance during data collection. We sincerely appreciate the students who participated in this study, providing valuable insights that contributed to its success. Finally, we acknowledge the support of our mentors and colleagues, whose guidance and encouragement played a crucial role in completing this project.

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