



The relationship between diet and events Gastroesophageal Reflux Disease (GERD) in teenager

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ABSTRACT

Heartburn (epigastric pain), acid regurgitation (gastric pain), nausea, and dysphagia are some of the symptoms of gastroesophageal reflux disease (GERD), a disorder in which stomach acid refluxes into the esophagus. Because it can cause digestive disorders in adolescents, diet is considered a risk factor for GERD. The approach used was cross-sectional, and sample selection was carried out through cluster random sampling of 40 respondents. The location of the study was at the Alue Pisang Health Center, Southwest Aceh, August–November 2024. The results of the bivariate analysis between diet and GERD symptoms in adolescents showed a relationship between the two, with a p value of 0.000 ($P < 0.05$). The health center is expected to promote education about GERD prevention in schools.

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1. Introduction

Gastroesophageal reflux disease (GERD) is a pathological condition caused by blockage of the esophageal mucosa (Clarrett & Hachem, 2018). Among the mechanisms that cause it are the tone of the lower esophageal sphincter, hiatal hernia, esophageal mucosal defense against reflux, and esophageal motility. This can result in esophageal mucosal abnormalities, such as Barrett's esophagus, with a burning sensation in the stomach, nausea, an unpleasant aftertaste, and difficulty swallowing (Priscilla, et al., 2017).

There are wide variations in the prevalence of GERD in different parts of the world. Between 2.5% and 51.2% of people worldwide are thought to suffer from gastroesophageal reflux disease (GERD). According to data from the Global Burden of Diseases (GBD), there were about 783.95 million instances of gastroesophageal reflux disease (GERD) worldwide in 2019 (Burns RD, Pfladderer CD, 2019). According to Leiman & Metz, 2019, GERD affects 10% to 20% of people in western nations, while Asians have a comparatively lower incidence of 5%. According to several Indian research, 7.6% to 18.7% of people have GERD (Fass et al., 2021). According to Gong et al., the prevalence of GERD is 15% in the US, 21% in England, 10.4% in Australia, 7.28% in China, 6.60% in Japan, 38.8% in Malaysia, and 1.6% in Singapore (Gong et al., 2019) (Kuswono & Bun Yurizali, 2021).

In Indonesia, one study found that the prevalence of GERD was higher among dyspepsia patients undergoing endoscopic procedures by 32.4% (Nasution & Syahri, 2021). Based on data from the Aceh Provincial Health Office, it states that reports of GERD cases received in 2020 amounted to 213

cases and increased in 2021 and 2022 to 536 and 1032 cases. In Southwest Aceh district, the incidence of GERD reaches 57 cases each year. Risk factors for GERD are caused by lifestyle, socio-economics and are mostly related to adolescent diet, such as smoking, alcohol, consumption of fatty and spicy foods, foods and drinks that are too acidic, ready-made foods and analgesic drugs (for example, non-steroidal anti-inflammatory drugs (NSAIDs) (Purnamasari et al., 2020).

Based on the many risk factors, one group of individuals who are at high risk are teenagers, reviewed from a series of eating habits that follow the developing food trends that make teenagers unable to maintain a good diet, and most teenagers who suffer from GERD early symptoms do not check themselves with health services because they consider these symptoms to be insignificant, or self-medicate, so that it can affect their quality of life and thus affect daily activities (Erianto et al., 2022) (Nasution & Satria, 2023).

2. Methods

This study employs a cross-sectional methodology and a quantitative technique, namely analyzing variable data collected at a certain point in time against a predetermined sample population (Polit DF, 2018). This study aims to analyze the relationship between dietary patterns and the incidence of Gastroesophageal Reflux Disease (GERD) in teenager. The research instrument used was the Dietary Pattern and Gastroesophageal Reflux Disease Questionnaire (GERD-Q) questionnaire to measure the incidence of GERD which has been validated in Indonesia with a Cronbach alpha value of 0.687–0.842 (Syam et al., 2013). The location of this study was at the Puskesmas Alue Pisang Aceh Barat Daya, Southwest Aceh. The population in this study were adolescents who came to the Alue Pisang Health Center, Southwest Aceh in the period August-November 2024. Sampling used the cluster random sampling technique of 40 respondents. Questionnaires were employed to collect data and data analysis used univariate and bivariate tests in the form of chi square tests. Data collection using questionnaires and data analysis using univariate and bivariate tests in the form of chi square tests because it only looks at the relationship between 2 variables.

3. Results and Discussion

3.1 Univariate Analysis

Table 1. Frequency distribution of adolescent eating patterns

Dietary habit	<i>f</i>	%
Good	23	57.5
Bad	17	42.5
Total	40	100

Based on table 1. Frequency of adolescent eating patterns, the majority of respondents had good eating patterns, amounting to 23 respondents (57.5%) and the minority had bad eating patterns, amounting to 17 respondents (42.5%).

Table 2. Frequency distribution of Gastroesophageal Reflux Disease (GERD) events

Gastroesophageal Reflux Disease (GERD)	<i>f</i>	%
GERD	14	65.0
No GERD	26	35.0
Total	37	100

Based on table 2. Frequency of occurrence of Gastroesophageal Reflux Disease (GERD), the majority experienced GERD events as many as 14 respondents (65.0%) and the minority experienced GERD events as many as 26 respondents (35.0%).

Bivariate Analysis

Table 3. Relationship between dietary patterns and the incidence of Gastroesophageal Reflux Disease (GERD) in adolescents

Dietary habit	Gastroesophageal Reflux Disease (GERD)						P-Value
	GERD		No GERD		Total		
	<i>f</i>	%	<i>f</i>	%	<i>F</i>	%	
Good	2	8.7	21	91.3	23	100	0.000
Bad	12	70.6	5	29.4	17	100	
Total	14	35.0	26	65.0	40	100	

Based on table 3, bivariate data analysis of dietary patterns with the occurrence of Gastroesophageal Reflux Disease (GERD), good dietary patterns with GERD occurrences of 2 respondents (8.7%) and good dietary patterns with no GERD occurrences of 21 respondents (91.3%), while poor dietary patterns experienced GERD occurrences of 12 respondents (70.6%) and poor dietary patterns did not experience GERD of 5 respondents (29.4%).

The results of the statistical test obtained a p-value of $0.000 < \alpha 0.05$, so H_0 was rejected and H_a was accepted, which means there is a significant relationship between diet and the incidence of Gastroesophageal Reflux Disease (GERD) in adolescents.

3.2 Discussions

The relationship between diet and the incidence of Gastroesophageal Reflux Disease (GERD) in inteenager at the Alue Pisang Health Center, West Aceh can be seen in table 3. The percentage of inteenager with poor diets suffered more from GERD, which was 12 respondents (70.6%). The percentage of adolescents with good diets did not suffer from GERD, which was 21 respondents (91.3%). The results of the study showed a relationship between diet and the incidence of Gastroesophageal Reflux Disease (GERD) in inteenager at the Alue Pisang Health Center, West Aceh.

Based on the results of the research data analysis, it was found that there is a relationship between eating patterns and the occurrence of GERD such as eating frequency, sleeping habits after eating, eating irregularities and types of food consumed, this study shows that dietary risk factors are related to the occurrence of GERD. This is corroborated by study by, which found that eating spicy meals and drinking carbonated or caffeinated beverages might influence the prevalence of GERD.

Teenagers' eating patterns can be influenced by several factors, due to the tight schedule of school activities, discussions and organizational activities outside of school which cause poor eating patterns in teenagers and also the tendency to follow food trends so that teenagers tend to choose to consume fast food and often skip breakfast, in addition to the influence of teenagers tending to consume a lot of snacks and coffee to accompany study time (Piccirillo et al., 2024) (Poddar, 2019). Other factors that can influence the occurrence of GERD include family history, smoking, alcohol and can also be influenced by stress factors (Awadalla N. J., 2019).

Gong et al., 2019 dan Montoro-Huguet 2022, According to a research, poor diets that include high salt intake, insufficient intake of fruits and vegetables, high intake of cereal, and excessive consumption of meat and eggs are associated with a greater prevalence of GERD (Beigrezaei et al., 2023). In addition, several studies have shown that a good diet such as vegetables, fruits, and high fiber can prevent the occurrence of GERD. According to the findings of a 2023 study by Nasution & Satria, there was a favorable shift in the direction of high adherence among teenagers to adopting a healthy diet that lowers their risk of developing GERD. The results of this study can be concluded that implementing a good diet in everyday life can prevent adolescents from getting GERD.

Dietary modification is highly recommended for inteenager to prevent GERD with the aim of reducing reflux and increasing intra-esophageal acid clearance. Teens with and without GERD are encouraged to follow a diet that includes avoiding unhealthy eating habits by avoiding GERD triggers, such as sleeping upright after meals, consuming less coffee, and consuming less spicy foods, fizzy beverages, and fat (National Heart, 2015).

4. Conclusion

The association between food and the incidence of gastroesophageal reflux disease (GERD) in inteenager, according to the findings of at the Puskesmas Alue Pisang Aceh Barat Daya, West Aceh, the p value was obtained at $0.000 < \alpha 0.05$, indicating that H_a was accepted and H_o was denied, indicating that diet and incidence are significantly correlated of Gastroesophageal Reflux Disease (GERD) in inteenager. It is necessary to conduct socialization of education on the prevention of Gastroesophageal Reflux Disease (GERD) to schools to increase inteenager knowledge in maintaining a diet in everyday life. So that it is hoped that in the future inteenager can increase their knowledge regarding good diet and no longer do bad diets. The limitations of the study are that there are still many adolescents who suffer from GERD but do not check themselves at the Puskesmas Alue Pisang Aceh Barat Daya so that the respondents in this study were not many and the research time was quite short. Furthermore, it can be used as a reference material, developing knowledge about the importance of maintaining a diet to prevent Gastroesophageal Reflux Disease (GERD) in inteenager and as a source of information for better further research.

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