

Conference Paper

Factors Related to the Incident of Dyspepsia Syndrome

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Dyspepsia syndrome is heartburn, nausea, early satiety, vomiting, belching, a full stomach, and bloating. Factors that influence *dyspepsia syndrome* are age, gender, occupation, eating pattern, and stress levels. The study aims to determine the factors associated with the incidence of *dyspepsia syndrome* in the inpatient ward of Kencana Hospital Serang City in 2021. This study used a cross-sectional study design, and the data were analyzed bivariate with a Chi-square test approach. The study population were all patients in the internal medicine inpatient room as many as 57 people. The sample in this study is total sampling. Variables of age, gender, occupation, eating pattern were collected with questionnaire, stress levels used DASS questionnaire. The results showed that the variables of age ($p = 0.018$), gender ($p = 0.035$), occupation ($p = 0.008$), and eating pattern ($p = 0.024$) had a significant relationship with the incidence of *dyspepsia syndrome*, while the stress level variable had no relationship with the incidence of *dyspepsia syndrome*. It is expected to improve health services by providing health education to respondents who suffer from *dyspepsia* so that they can add information about *dyspepsia* for them.

Keywords: dyspepsia syndrome, eating pattern, stress level

1. Introduction

Dyspepsia syndrome is discomfort such as nausea, early satiety, vomiting, belching, a full stomach, and bloating in the digestive tract, especially in the epigastrium. *Dyspepsia* is felt at certain times by patients¹. *Dyspepsia* is grouped into organic *dyspepsia* and functional *dyspepsia*². The global incidence of *dyspepsia* reaches 7-41%, while the prevalence of *dyspepsia* in Indonesia has increased every year. In 2014 diagnosed *dyspepsia* reached 40-50%. In 2018, *dyspepsia* was one of the 10 most common diseases outpatients for the hajj group and ranked 10th with 11,797 cases with a prevalence rate of 2.54%³. *Dyspepsia* in Serang City was ranked 19th out of 48 major diseases at Public Health Centers throughout Serang City in 2020. In 2020, there were 1,294 cases

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of *dyspepsia*. *Dyspepsia* cases in 2021 reached 683 patients at Kencana Hospital and were included in the top 10 inpatient diseases.

Dyspepsia can be caused by various factors, including eating patterns and environmental factors, gastric motor function, gastric acid secretion, *Helicobacter pylori* infection, and psychology¹. Irregular patterns such as leaving breakfast due to busy activities can cause *dyspepsia syndrome*⁴. If this continues for a long time, the production of gastric acid will be excessive so that it can irritate the gastric mucosal wall, causing gastritis and peptic ulcers. This condition can cause nausea and stinging, and rise to the esophagus which causes a burning sensation⁵.

In addition to eating patterns, *dyspepsia syndrome* is influenced by stress levels. Stress is a non-specific response of the body to any demands on its workload. Stress hurts neuroendocrine mechanisms in the digestive tract so it can be at risk of experiencing *dyspepsia*. Gastric acid production can increase under stress conditions⁶. This study provides an understanding to the reader about the factors that cause *dyspepsia syndrome* so that preventive measures can be taken. *Dyspepsia syndrome* is a symptom that can cause ulcer disease which can be at risk of causing more severe disease in the stomach. *Dyspepsia syndrome* is one of the top 10 diseases in Kencana Hospital Serang, so this is a problem that must be analyzed to reduce the incidence. This study aims to determine the factors associated with the incidence of *dyspepsia syndrome*.

2. Research Method

2.1. Study design

This study use quantitative research with cross-sectional design. The independent variables in this study were age, gender, occupation, eating pattern, and stress level. The dependent variable in this study was *dyspepsia syndrome*. Independent and dependent variables were analyzed at the same time.

2.2. Sample

The sample is 57 inpatients in Kencana Hospital Serang City. The study was conducted from December 2021 – January 2022.

2.3. Instrument

Data were obtained through interviews using a questionnaire that referred to previous studies to explore age, gender, occupation, and eating patterns. Stress levels were measured using the DASS questionnaire with 42 questions measuring emotional states, such as anxiety, depression, and stress.

2.4. Data collection procedure

Primary data collected through interview with respondent use questionnaire. Secondary data sources from Kencana Hospital Serang. All data collected were analyzed univariate and bivariate. Univariate analysis to determine the distribution description by displaying frequency tables to obtain an overview of each variable, both independent and dependent variables.

2.5. Data analysis

The research data were analyzed using bivariate analysis patterns with a chi-square approach. Bivariate analysis to describe relationship between independent variable with dependent variable.

3. Results

Based on the results of the study obtained the following data:

Based on table 1, it is known that the incidence of *dyspepsia syndrome* is 56.1%. As many as 66.7% of respondents were aged 30 years, female respondents were 61.4%. Respondents who work more (64.9%), respondents with irregular eating patterns 50.9% with a mild stress level of 33.3%.

Based on table 2, it is known that the variables related to *dyspepsia syndrome* are age, gender, work status, and eating patterns, while stress levels are not statistically related to the incidence of *dyspepsia syndrome*.

TABLE 1: Frequency Distribution of Research Variables.

Variable	Frequency	Percentage
Age		
<30 years old	19	33,3%
≥ 30 years old	38	66,7%
Gender		
Male	22	38,6%
Female	35	61,4%
Worker		
Not working	20	35,1%
working	37	64,9%
Eating pattern		
Regularly	28	49,1%
Irregularly	29	50,9%
Stress level		
Normal	15	26,3%
Mild	19	33,3%
Moderate	15	26,3%
Severe	4	7,0%
Very severe	4	7,0%
<i>Syndrome Dyspepsia</i>		
No	25	43,9%
Yes	32	56,1%

TABLE 2: Factors Associated with *Dyspepsia Syndrome*.

Variable	<i>Syndrome Dyspepsia</i>				Total	P Value	OR (95% CI)
	No		Yes				
	N	%	n	%			
Respondent's Age < 30 Years Old	13	68,4%	6	31,6%	19	0,018	
30 Years Old ≥ 30 Years Old	12	31,6%	26	68,4%	38		
Gender Male	14	63,6%	8	36,4%	22	0,035	
Female	11	31,4%	24	68,6%	35		
Worker Not Working	14	70,0%	6	30,0%	20	0,008	
Working	11	29,7%	26	70,3%	37		
Eating pattern Regularly	17	60,7%	11	39,3%	28	0,024	
Irregularly	8	27,6%	21	72,4%	29		
Stress Level Normal	7	46,7%	8	53,3%	15	0,563	
Mild	9	47,4%	10	52,6%	19		
Moderate	5	33,3%	3	66,7%	8		
Severe	1	25,0%	1	75,0%	2		
Very Severe	3	75,0%	1	25,0%	4		

4. Discussion

Based on research results it is known that the number of respondents who experience *dyspepsia* complaints is as much as 43.9% with the incidence of chronic *dyspepsia* as many as 53.3% and the incidence of acute *dyspepsia* among as many as 46.7% of respondents. The incidence of dyspepsia in this study shows a difference from previous research which states that respondents who experience *dyspepsia* complaints are more than those who do not experience complaints⁷. According to Muflih & Najamuddin (2020) *dyspepsia syndrome* is pain or discomfort in the solar plexus. This condition is considered a disorder in the body caused by the body's reaction to the surrounding environment⁸. This reaction causes metabolic imbalance disorders and often attacks individuals of productive age, namely 30-59 years of age. Although not fatal, this disorder can reduce the quality of life and become a social burden on the community⁹. In theory, *dyspepsia syndrome* can be caused by age, gender, occupation, eating patterns, and stress levels. In this study, statistically, age, gender, working status and eating pattern were associated with *dyspepsia syndrome*.

According this research, respondent with age ≥ 30 years old more likely to experience dyspepsia syndrome than age < 30 years old. Result research also show that is relationship between age with dyspepsia syndrome. The incidence of *dyspepsia* is mostly at an early, young, and adult age, including productive age, productive age is a lot of busyness due to work and other activities and tends to be exposed to factors that increase the risk for developing *dyspepsia*, related to imbalanced eating patterns and stress levels at work and unhealthy lifestyles good or unhealthy¹⁰. Dyspepsia syndrome in young age 90% is caused by behavioral and eating pattern factors, 10% is caused by *Helicobacter pylori* infection. In old age, 50% is caused by *Helicobacter pylori* infection and the other 50% is caused by behavior and eating patterns. *Dyspepsia* is also associated with decreased gastrointestinal function in the elderly. Increasing a person's age is usually always associated with a decrease in routine sports activities and a decrease in a person's physiological hormonal activity so it is strongly associated with an increased risk of *dyspepsia*¹¹. Efforts to reduce the risk of *dyspepsia syndrome* at productive age must be done by maintaining a better lifestyle.

Based on research, there is a relationship between gender and the incidence of dyspepsia syndrome. The results of the analysis of the distribution of sex, it shows that a total of 57 respondents who have been studied are known to be male as much

as 22 (33.3%) and female sex as much as 35 (61.4%). In this research, female suffer from dyspepsia more than male. This is in line with previous research which states that women suffer from *dyspepsia* more (72.0%) than men (28.0%). In addition, there is a difference in the proportion between sex and the incidence of *dyspepsia syndrome*¹². Gender differences can affect the hormonal system. Gastric secretion is regulated by nervous mechanisms and the hormone gastrin¹³. This hormone acts on the glands of gastric glands and causes additional flow to the highly acidic stomach. The secretion lasts for several hours. The gastrin hormone is influenced by several things, such as the presence of large amounts of food in the stomach. But apparently, some things affect the work of the hormone gastrin and gender. Hormonal factors in women are more reactive than in men.

Men are more tolerant of pain in the symptoms of gastric disorders than women. One of the reasons why women are more dominant in experiencing *dyspepsia* is due to inappropriate eating pattern factors. Women who do an inappropriate diet program will certainly be very dangerous and not recommended because they are very at risk of experiencing disease events related to intestinal disorders¹⁴. Therefore, to avoid the risk of *dyspepsia*, especially women, must manage their lifestyle properly. The results of this study were obtained because women are also more likely to experience psychological problems/changes such as stress. Stress experienced by a person can cause anxiety which is closely related to lifestyle¹⁰. Anxiety disorders can cause various physiological responses, including digestive disorders. For someone who experiences stress to depression, there is an increase in acetylcholine which causes hypersympathotonic gastrointestinal system which will cause increased peristalsis, and gastric acid which causes gastric hyperacidity, colic, vomitus, and most of the symptoms of gastritis and peptic ulcer.

Based on the results of the analysis showed that from a total of 57 respondents, 20 (35.1%) were not working and 37 (64.9%). Result also showed that respondent who work more suffer than don't. Someone who has activity is at a higher risk of suffering from *dyspepsia*. This is because someone more focused on work tends to forget the meal schedule¹⁵. The results of the analysis of the distribution of eating patterns showed that from a total of 57 respondents who had been studied, it was known that there were 28 (49.1%) *dyspepsia syndromes* and 29 (50.9%). The results showed that respondents who worked higher experienced *dyspepsia syndrome*. Based on the analysis between diet and the incidence of *dyspepsia syndrome*, data obtained as many as 72.4% of

respondents with irregular eating patterns with *dyspepsia syndrome*. Meanwhile, 39.3% of respondents with regular eating patterns had *dyspepsia syndrome*. The results of the analysis showed that there was a significant relationship between diet and the incidence of *dyspepsia syndrome*. This is in line with previous study which states that respondents with irregular eating patterns show a higher percentage (87.1%)¹⁶.

Dyspepsia syndrome is a collection of symptoms consisting of heartburn, nausea, bloating, vomiting, feeling full quickly, and belching¹⁷. The incidence of *dyspepsia* is indeed very closely related to irregular eating patterns. The incidence of *dyspepsia* can be caused by a person's lack of understanding of eating patterns or patterns of food consumption and uncontrolled daily behavior¹⁸. In the results of the study, many complained of heartburn, where the most complaints were epigastric pain as much as 80% and vomiting as the least complaint, namely 40%. The results before showed that more than half of the respondents had an unregulated diet. The respondent's eating patterns were assessed from the frequency of eating during the day, and eating patterns (morning, afternoon, and evening) during the day. Respondents who have irregular eating patterns are more at risk to *dyspepsia syndrome*¹⁹. Dissatisfaction with body shape and requiring a diet can lead to eating disorders, this is often experienced by women who want to look slim. Irregular eating patterns such as leaving breakfast due to busy activities, cause *dyspepsia syndrome*²⁰.

Based on the analysis of the distribution of stress levels, it shows that the normal stress level is 26.3%, the light stress level is 33.3%, the moderate stress level is 26.3%, the severe stress level and very severe stress level is 7.0%. This is in line with previous research which found that respondents who did not experience stress were higher than other stress levels¹². The stress experienced by a person can cause anxiety which is closely related to the pattern of life. As a result of fatigue, mental disturbances and too much work and financial problems can cause anxiety in a person. Anxiety disorders can cause various physiological responses, including digestive disorders.

A person who is exposed to stress has changed their eating pattern. You can have no appetite or even increase your appetite. This changing eating pattern is of course very disturbing to the person's lifestyle. Various diseases do not hesitate to approach, ranging from ulcers to nausea due to eating too much. If this condition lasts for a long time, it can potentially cause other health problems⁸. The results of the analysis test revealed that there was no significant relationship between stress levels and the incidence of *dyspepsia syndrome*.

Stress that occurs in each individual can be influenced by several factors such as physiological functions, personality, behavioral characteristics, and characteristics of the stressor experienced. These stressors include the duration, intensity, amount, scope, and nature of the stressor itself²¹. Stress experienced by a person does not always cause dyspepsia. Other factors can trigger this, one of which is a history of gastritis. This also reinforced that functional dyspepsia can be established if the diagnostic support facilities cannot show the presence of structural or biochemical pathological disorders. Based on the research above, it can be concluded that normal, mild, moderate, and severe stress levels can cause dyspepsia because stress has a negative effect through neuroendocrine mechanisms on the digestive tract, so there is a risk of experiencing acute or chronic dyspepsia. To keep the onset or recurrence of dyspepsia should reduce excessive stress.

5. Conclusion

Based on the results of the analysis and discussion, it can be concluded that the level of stress is not associated with *dyspepsia syndrome*. Factors that can cause *dyspepsia syndrome* are age, gender, occupation, and eating pattern.

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Conflict of Interest

In this study, there is no conflict of interest. The research team is not an editorial team at KnE Publisher and is not part of the KnE review team.

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