Contents lists available at IOCS

Science Midwifery

journal homepage: www.midwifery.iocspublisher.org

What factors affect the recurrence of gastritis in adolescents: A case study of students at State Senior High School 1 Surade

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ARTICLEINFO

Article history:

Received Jul 22, 2024
Revised Jul 29, 2024
Accepted Jul 31, 2024

Keywords:

Dietary Habit
Drug Consumption
Gastritis
Relapse
Stress

ABSTRACT

Gastritis is very disruptive to daily activities, so it can result in decreased quality of life, and less productive. If gastritis is not treated properly, it will have an impact on the patient. Preventing gastritis should be done by reducing the factors that influence the occurrence of the disease. The purpose of this study was to determine the factors that influence gastritis recurrence in adolescents at SMAN I Surade. As for the type of research used is correlation descriptive observation. This study uses total sampling technique. The sample used in this study amounted to 40 adolescents who had gastritis or ulcer pain. This study used a questionnaire. The analysis method used is statistical test using Chi Squere. The results showed that there was a relationship between dietary factors with the frequency of gastritis recurrence of 0.035 <0.05, with a closeness of 0.453 in the moderate category. There is a relationship between stress factors with the frequency of gastritis recurrence of 0.021 <0.05, with a closeness of 0.473 in the moderate category. There is a relationship between dietary factors with the frequency of gastritis recurrence of 0.002 <0.05, with a tightness of 0.483 in the moderate category with the most influential factor on gastritis recurrence is the drug consumption factor.

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INTRODUCTION

Gastritis is an inflammatory process in the mucosa and submucosa of the stomach. Gastritis that lasts for a long time will get inflammatory changes in the mucosa that affect the occurrence of mucosal atrophy and epithelial metaplasia so that it will become chronic gastritis (Hirlan, 2009). According to the World Health Organization (WHO) in Kurnia (2011), the incidence of gastritis in the world is around 1.8-2.1 million people each year, in the UK (22%), China (31%), Japan (14.5%), Canada (35%), and France (29.5%). Gastritis sufferers in Southeast Asia are around 583,635 of the total population each year. In Indonesia, the number of gastritis sufferers is 40.8%, and the incidence of gastritis in several regions in Indonesia is quite high with a prevalence of 274,396 cases out of 238,452,952 population). Based on the Indonesian health profile in 2011, gastritis is one of the 10 most common diseases in hospital inpatients in Indonesia with a total of 30,154 cases (4.9%)

(Ministry of Health, 2012).

Signs and symptoms that often occur in patients with gastritis are abdominal discomfort, flatulence, nausea and headaches that interfere with daily activities, vomiting, stinging or burning pain in the upper abdomen that can get better or worse while eating, loss of appetite, burping (Raifudin, 2010). Gastritis is very disruptive to daily activities, so it can result in decreased quality of life, and less productive. If not treated properly it will be fatal even to the stage of death. Gastritis can cause gastric secretions to increase and result in stomach wounds (ulcers) can also cause upper gastrointestinal bleeding in the form of hematemesis (vomiting blood), melena, perforation and anaemia due to impaired absorption of vitamin B12 (pernicious anaemia) and can even cause gastric cancer (Suratum, 2010).

Gastritis can be caused by frequent consumption of foods that increase stomach acid, such as spicy and sour foods, as well as how to cook food that is not fully cooked can be a major cause of increased stomach acid, because the stomach is difficult to digest food so that the work of the stomach is higher and results in increased stomach acid (Iskandar, 2009).Gastritis caused by excessive gastric acid production can be aggravated by factors that cause gastritis recurrence.Usually irregular meal times, poor nutrition or food quality, the amount of food is too much or even too little, the type of food that is less suitable or difficult to digest, and lack of rest (Ardian, 2013).

Prolonged stress is a triggering factor for the appearance of gastritis because it can cause reduced blood flow to the gastric wall mucosa resulting in increased gastric wall permeability. This can have a negative impact on a person's psychological state. Consumption of non-steroidal anti-inflammatory drugs can trigger an increase in gastric acid production due to reverse diffusion of hydrogen ions to the gastric epithelium. This results in irritation of the gastric mucosa and increased acidity in the stomach (Ardian, 2013).

The level of awareness of Indonesian society is still very low regarding the importance of maintaining gastric health, even though gastritis pain is very disruptive to daily activities, both in adolescents and adults.Various studies have concluded that the most common complaints of pain in gastritis are due to functional gastritis, reaching 70-80% of all cases.Functional gastritis is a pain that is not caused by disorders of the stomach organs but is more often triggered by inappropriate food and stress, and drugs (Saydam, 2011).Based on preliminary studies conducted by researchers on 16 August 2023 at SMAN I Surade by conducting interviews with 10 students obtained 30% with complaints of pain in the upper abdomen, that most students choose an unhealthy diet.From the observation there were students who snacked in the school canteen on average eating spicy and seasoned foods, students also consumed snacks and drinks containing soda.Busy daily activities and unfinished assignments also disrupt their diet and cause psychological stress, so they are late to eat and only take medicine to relieve stomach pain.

The type of research used is descriptive correlation observation with the aim of seeing the relationship between symptoms and other symptoms, or variables with other variables (Notoatmojo, 2010).The approach used in this study is a Cross Sectional approach, which is a study to study the dynamics of the correlation between risk factors and effects through approaches, observations, or data collection at one time (point time approach), meaning that each research subject is only observed once and measurements are made of character status or variables only at the time of examination, this does not mean that all research subjects are observed at the same time.

The population in this study were students who experienced gastritis aged 15-18 years at SMAN I Surade with a total of 40 adolescents so that the sampling technique used was a total sampling technique where the entire population was sampled, namely 40 respondents. Researchers used a questionnaire to collect data where respondents had to answer questions related to the variables studied, namely stress, consumption of drugs, and frequency of eating that irritates the stomach (diet).

RESULTS AND DISCUSSIONS

Univariate Analysis

Univariate analysis is used to explain the characteristics and produce a percentage distribution of each variable (Sugiyono, 2012). The following are the results of the univariate analysis.

Table 1. Dietary questionnaire results

No.	**Favourable Dietary habit**	Yes	%	No	%
1	Do you eat 3 meals a day?	22	(55)	18	(45)
2	Is your diet (breakfast, lunch, dinner) on a regular basis?	11	(28)	29	(73)
3	Does breakfast have an effect onyour activities in the morning?	32	(80)	8	(20)
4	Are your meals regular?	4	(10)	36	(90)
5	Do you often feel weak if you don't breakfast?	21	(53)	19	(48)
7	Do you eat fruits and vegetables every day?	24	(60)	16	(40)
8	Have you been consuming wateras much as 2.5 litres of water every day?	16	(40)	24	(60)
10	Do you often eat late?	32	(80)	8	(20)
	Unfavourable Diet				
6	Do you often eat fast food?	14	(35)	26	(65)
9	Do you often consume fizzy drinks? fizzy drinks?	10	(25)	30	(75)

Based on table 1, it can be seen that the majority of respondents answered favourable questions 'yes' as much as 80% related to breakfast affecting activities because if not the body will feel weak. While unfavourable in a small part answered yes to the statement that 35% of respondents often consume fast food which should not be consumed too much.

Table 2 Stress questionnaire results

No.	Favourable Stres	Yes	%	No	%
1	Do you feel tense or anxious for no good reason?	14	(35)	26	(65)
2	Do you have a lot of problems	13	(33)	27	(68)
4	Are you unable to control or emotions?	14	(35)	26	(65)
5	Do you feel irritated and angry?	25	(63)	15	(38)
6	Do you have trouble concentrating?	22	(55)	18	(45)
7	Do you have trouble sleeping at night?	20	(50)	20	(50)
8	Do you often feel your heart pounding when you are scared and	32	(80)	8	(20)
9	Do you have a headache?	22	(55)	18	(45)
10	Are you often not in the mood to eat?	25	(63)	15	(38)
	Unfavourable Stres				
3	Do you feel like you can't cope with the problems that you are experiencing?	11	(28)	29	(73)

Based on table 2, the results of the stress questionnaire can be seen that most respondents answered yes to the favourable question as many as 80% of respondents felt palpitations when afraid and anxious. While in unfavourable questions it is known that 28% feel no problem.

Table 3 Results of medicine consumption questionnaire

No.	Favourable Question Drug Consumption	Yes	%	No	%
1	Do you often take medication to relieve abdominal pain?	11	(28)	29	(73)
2	Do you often take medication when youfeel dizzy?	13	(33)	27	(68)
3	Do you take medication when youeat late?	4	(10)	36	(90)

Based on Table 3, the results of the drug consumption questionnaire can be seen that 10% of respondents mostly stated that they did not take medicine when they were late eating, but instead they took dizziness medicine.

Bivariate Analysis

Bivariate analysis to determine the correlation coefficient using Chi square, this analysis is used to measure the correlation coefficient between two variables.

Table 4. Cross tabulation of the relationship between dietary factors and frequency of recurrence gastritis in adolescents in SMA Negeri 1 Surade

Pattern Eating	Frequency Cross Tabulation Gastritis Recurrence						Total		*P-Value Chi Square*	*Closeness Relationship*
	Light weight		Medium		Weight					
	F	%	F	%	f	%	f	%		
Good	2	5	5	12,5	0	0	7	17,5	0,035	0,453
Less	12	30	10	25	1	2,5	23	57,5		(Medium)
Bad	6	15	1	2,5	3	7,5	10	25		
Total	20	50	16	40	4	10	40	100		

Table 4 shows that most respondents experienced mild relapse due to poor diet, totalling 12 (30%) respondents. Hypothesis testing was carried out using Chi Square correlation analysis. Based on the calculation results, the p-value is 0.035>0.05. From these results it can be concluded that there is a relationship between dietary factors and the frequency of gastritis recurrence.

Table 5. Cross tabulation of the relationship between stress factors and frequency of gastritis recurrence in adolescents at SMA Negeri 1 Surade

Stress	Cross Tabulation Recurrence Frequency Gastritis						Total		*P-Value Chi Square*	*Closeness Relationship*
	Light		Medium		Heavy					
	f	%	F	%	F	%	f	%		
High	3	7,5	5	12,5	4	10	12	30	0,021	0,473
Medium	10	25	7	17,5	0	0	17	42,5		(Medium)
Low	7	17,5	4	10	0	0	11	27,5		
Total	20	50	16	40	4	10	40	100		

Table 5 shows that most respondents experienced mild recurrence had a tendency to moderate category stress, totalling 10 (25%) respondents.Hypothesis testing was carried out using Chi Square correlation analysis.Based on the results of the calculation obtained a p-value of 0.021>0.05. From these results it can be concluded that there is a relationship between stress factors and the frequency of gastritis recurrence.

Table 6 Cross tabulation of the relationship between drug consumption factors and frequency of gastritis recurrence in adolescents at SMA Negeri 1 Surade

Drug Consumption	Frequency Cross Tabulation Gastritis Recurrence						Total		*P-Value Chi Square*	Closeness of Relationship
	Ringan		Sedang		Berat					
	f	%	f	%	F	%	F	%		
Not using	15	37,5	3	7,5	1	2,5	19	47,5	0,002	0,483(Medium)
Using	5	12,5	13	32,5	3	7,5	21	52,5		
Total	20	50	16	40	4	10	40	100		

Based on table 6, it can be seen that most respondents experiencing mild recurrence tend not to use NSAID drugs, totalling 15 (37.5%) respondents.Hypothesis testing was carried out using Chi Square correlation analysis.Based on the results of the calculation, the p-value was 0.002>0.05. From these results it can be concluded that there is a relationship between drug consumption factors and the frequency of gastritis recurrence.

Table 7. Orginal logistic regression results

Variables	Estimate	Risk	Df	Sig.
Diet	0,115	1,12	1	0,913
Stress	1,532	4,61	1	0,124
Drug Consumption	2,12	8,3	1	0,007

If the ordinal logistic regression model has been tested and the model results are good and significant, the data can be interpreted using the odds ratio test, with the following information: a) Odds ratio of diet (X1): Ψ=e0.115=1.12. This can be interpreted that the chance of respondents to relapse is 1.12 times if the diet is not good; b) Odss ratio of stress (X2): Ψ=e1.53 =4.618 This can be interpreted that the chance of respondents to frequently relapse in high stress is 4.6 times compared to other respondents who do not relapse; c) Odds ratio (X2): Ψ=e2.12=8.3 This implies that the chance of frequent relapse is 8.3 times in the aspect of not using NSAID medication.

Based on table 7, it can be seen that the most significant dominant factor is the variable of drug consumption 8.3 times will relapse when not using NSAIDs.

Discussion

The characteristics of respondents based on gender showed that most of the respondents were female as many as 33 respondents (82.5%). Based on gender, women are more often affected by gastritis. This is because women often diet too tightly, for fear of fat, eat irregularly, besides that women are more emotional than men. The results of this study are in accordance with the research of Murjayanah (2010) that risk factors associated with the incidence of gastritis (Study at RSU. dr.R Soestrasno Rembang) that there is a relationship between gender factors (p=0.018, OR=3.059). The results of research on the characteristics of respondents based on age showed that most respondents were 17 years old as many as 24 respondents (60%). One of the factors that influence diet is age. The age of respondents is mostly 17 years old, this age tends to pay less attention to their health for reasons of busyness. The results of this study are also reinforced by Hartati et al (2014) that gastritis can attack from all age levels. According to the survey shows that gastritis attacks productive age. At a productive age is vulnerable to attack because of busyness and a lifestyle that is less considered so that health and stress are easily a factor in recurrence.

The results of the study for dietary variables showed that most respondents had a poor diet as many as 23 respondents (57.5%). Deviations in eating habits, ways of eating and consumption of unhealthy types of food can cause acute gastritis, food deviation factors are the starting point that affects the occurrence of changes in the stomach wall. The results of this study are in accordance with the research of Murjayanah (2010) that risk factors associated with the incidence of gastritis (Study at RSU. dr. R Soestrasno Rembang) that there is a relationship with diet.

The results of the study for the stress variable showed that most respondents experienced moderate stress as many as 17 respondents (42.5%). Stress will affect the incidence of gastritis because stress will affect hormones that will increase stomach acid. This was corroborated by Prasetyo et al (2014) who stated that the majority of respondents experienced high stress. Respondents stated that there were symptoms of complaints of abdominal pain due to busyness to forget about meal times.

The results of the study for drug consumption variables showed that most respondents did not use NSAID drugs as many as 21 respondents (52.5%). Drugs containing salicylates such as aspirin (often used as a headache reliever) in excessive levels of consumption can cause gastritis. In this study, respondents did not use NSAIDs but used dizziness medication. The results of this study are in accordance with research by Murjayanah (2010) that risk factors associated with the incidence of gastritis (Study at RSU. dr. R Soestrasno Rembang) that there is a relationship between

factors of consumption of drugs that irritate the stomach, a history of consuming drugs that irritate the stomach (p=0.003, OR=4.129).

The results of the study on the characteristics of respondents based on the frequency of recurrence showed that most of the respondents were in the mild category as many as 20 respondents (50%), this was confirmed by the results of the study that most were not treated for gastritis.The researcher's assumption is that the occurrence of mild recurrence is due to the irregularity of the respondent's diet.In the results of research on the respondent's diet, it was found that most respondents had a poor diet. The results of this study are in accordance with the theory of Ardian (2013) that factors that cause gastritis recurrence. Usually irregular meal times, poor nutrition or food quality, the amount of food consumed, the amount of food consumed, and the amount of food consumed.

The results of research based on diet showed that respondents had a poor diet as many as 23 respondents (57.5%). The poor diet experienced by respondents was influenced by age factors. The researcher's assumption in this study was that the factors that influence diet are age. The age of respondents is mostly 17 years old, this age tends to pay less attention to food and their health. The results of this study are corroborated by Patcheep's research (2011) explaining several factors that influence eating behaviour and food choices in adolescents, one of which is the age of adolescents eating as they please without paying attention to what they eat. Whil older people will be more likely to choose food based on health problems.

The results of research on the characteristics of respondents based on stress showed that most respondents experienced moderate stress as many as 17 respondents (42.5%). Stress in this study was found to be in the moderate category. The researcher's assumption is that this stress occurs due to the influence of peers. Stress in peer groups tends to be high in the middle of the school year. Adolescents who are not accepted by their peers will usually suffer, shut down, and have low self-esteem. Prolonged stress triggers the appearance of gastritis because it can cause reduced blood flow to the gastric wall mucosa resulting in increased gastric wall permeability.

The results of the study on the characteristics of respondents based on drug consumption showed that most respondents used NSAID drugs as many as 21 respondents (52.5%). The researcher's assumption is that most respondents use NSAID drugs so that more acute gastritis does not occur when in fact if it is not severe, do not use anti-inflammatory drugs because they will experience irritation. This is corroborated by Ardian (2013) Consumption of non-steroidal anti-inflammatory drugs can trigger an increase in gastric acid production due to the reverse diffusion of hydrogen ions to the gastric epithelium. So that the gastric mucosal wall is irritated and the degree of acidity in the stomach increases (Ardian, 2013).

Hypothesis testing was carried out using chi square correlation analysis. Based on the results of this study obtained the coefficient price of the relationship between dietary factors with the frequency of gastritis recurrence p-value of 0.035>0.05. From these results it can be concluded that there is a relationship between dietary factors with the frequency of gastritis recurrence, with the description of most respondents experiencing mild recurrence tends to be due to a poor diet of 12 (30%) respondents. The poor diet experienced by respondents is influenced by age factors. The researcher's assumption in this study was that the factors that influence diet were age. The age of respondents is mostly 17 years old and tends to pay less attention to their health. The results of this study are corroborated by Patcheep's research (2011) explaining several factors that influence eating behaviour and food choices in adolescents, one of which is the age of adolescents tend to eat as they please without paying attention to what they eat. Whereas older people will be more likely to choose food based on their health problems.

From the observations made by researchers, 73% of respondents were irregular in their diet, 90% of respondents ate irregularly, 65% of respondents consumed fast food, 75% of respondents consumed soft drinks and did not consume at least 2.5 litres of water. Such habits can trigger stomach acid. These findings are in accordance with the theory of Bruner and Suddarth

(2010) that the stomach will naturally continue to produce gastric acid every time in small amounts after 4-6 hours after eating usually glucose in the blood has been absorbed and used so that the body will feel hungry and at that time the amount of gastric acid is stimulated. If a person is late eating up to 2-3 hours, then the stomach acid produced more and more can irritate the gastric mucosa and cause pain around the epigastrium.

Hypothesis testing was carried out using Chi Square correlation analysis. Based on the results of this study, the coefficient price of the relationship between stress factors and the frequency of gastritis recurrence was obtained p-value of 0.021>0.05. From these results it can be concluded that there is a relationship between stress factors and the frequency of gastritis recurrence. most respondents experienced mild recurrence had a tendency to moderate category stress, totalling 10 (25%) respondents. Stress in this study was found in the moderate category. The researcher's assumption is that this stress occurs due to the influence of peers. Stress in peer groups tends to be high in the middle of the school year. Teenagers who are not accepted by their peers will usually suffer, shut down, and have low self-esteem. Prolonged stress triggers the appearance of gastritis because it can cause reduced blood flow to the gastric wall mucosa resulting in increased permeability of the gastric wall, which can cause a negative impact on a person's psychological state.

The results of the researchers' observations regarding stress were that they experienced feelings of annoyance and anger, difficulty concentrating, difficulty sleeping, frequent heart palpitations when anxious, headaches, and no interest in eating. This occurs due to the influence of educational burden in the respondent's environment. Stress is fatigue caused by anxiety, due to excessive production of HCL acid in the stomach due to calmness or stress. If stress and emotions are left unchecked, the body will try to adapt and survive under pressure. This condition causes pathological changes in the tissues or organs of the human body, through the autonomic nerves. As a result, adaptation diseases will arise in the form of stomach ulcers or gastritis. Therefore, gasritis sufferers should relax more and avoid stress, because stress can stimulate the production of stomach acid, causing inflammation. The results of this study are in line with Wahyuni (2012) regarding the accuracy of meal times, caffeine intake, protein and stress levels on the incidence of gastritis in students. These results found that there was a relationship between stress levels and the incidence of gastritis in students. Where respondents with high stress levels are at risk of developing gastritis than respondents with low stress levels.

Hypothesis testing was carried out using chi square correlation analysis. Based on the results of this research, the coefficient of the relationship between drug consumption factors and the frequency of gastritis recurrence has a p-value of 0.002>0.05. From these results it can be concluded that there is a relationship between drug consumption factors and the frequency of gastritis recurrence. The majority of respondents who experienced mild recurrence tended not to use NSAIDs, numbering 15 (37.5%) respondents. Researchers observed that 28% of respondents took medicine for stomach pain, 33% took medicine for dizziness, and 10% of respondents would take medicine when they were late eating. According to researchers, the habit of taking this drug can trigger irritation of the stomach. so that the respondent experienced increased stomach acid.

This is confirmed by Yulikustan's theory (in Megawati & Nosi, 2014) that Inflammatory Drugs (NSAIDs) Drugs that can influence the occurrence of gastritis include the use of Nonsteroidal Antiinflammatory Drugs (NSAIDs), such as Aspirin, Ibuprofen, Naproxen and Piroxicam. causes inflammation of the stomach by reducing prostaglandins which are responsible for protecting the stomach wall. If you use it once, the possibility of gastric problems will be small. But if it is used continuously or excessively it can cause gastritis and peptic ulcer.

The results of this study are in line with research conducted by Lucky (2009), in his research the risk of using NSAIDs was higher than previously imagined. Research shows that with long-term use of NSAIDs there is a 2-4% incidence of Gastrointestinal (GI) complications requiring hospital treatment. It is also reported that 30% of long-term NSAID users experience an ulcer attack

at least once. NSAIDs provide anti-inflammatory benefits through their action on the cyclooxygenase enzyme. -2 (COX-2). At the same time, they can cause gastric ulcers through their action on the enzyme cyclooxygenase-1 (COX-1). Analgesics such as acetaminophen are more specific for the third form of cyclooxygenase which is mainly located in the brain and is responsible for fever and pain.

The factor that most influences gastritis recurrence is drug consumption. According to researchers' observations, respondents found it very easy to use NSAIDs. Researchers observed that 28% of respondents took medication for stomach pain, 33% took medication for dizziness when they were dizzy, and 10% of respondents would take medication when they were late eating. According to the researchers' assumption, respondents took pain medication because when the gastritis recurred, what the respondents felt was actually a headache. Side effects of aspirin dizziness can cause heartburn and stomach irritation, such as nausea, vomiting and indigestion. This is a common side effect of aspirin, but it can cause serious health problems. Respondents tend to have the habit of taking dizziness medication which can trigger stomach irritation. so that the respondent experienced increased stomach acid.

This factor can also be seen from the results of hypothesis testing using logistic regression, it is known that the most significant dominant factor is the drug consumption variable, 8.3 times there will be a relapse if you don't use NSAIDs. The results of this study are in line with Yulikustan's research (in Megawati & Nosi, 2014) adding that there is an effect of consuming NSAID-type drugs on the incidence of gastritis. Where respondents who consume medication suffer more from gastritis compared to respondents who do not suffer from gastritis. So the researchers assume that the greater the frequency with which a person consumes NSAID-type drugs, the greater the person's potential for suffering from gastritis, and vice versa. The smaller the frequency with which a person consumes NSAID-type drugs, the smaller the person's potential for suffering from gastritis. So the researchers concluded that there is an influence of consuming NSAID type drugs on the incidence of gastritis in adolescents.

CONCLUSION

Based on the research results, it can be concluded that the frequency of recurrence shows that the majority of respondents were in the mild category, 20 respondents (50%). Diet patterns show that the majority of respondents have poor eating patterns, 23 respondents (57.5%). Stress shows that the majority of respondents experienced moderate stress, 17 respondents (42.5%). Drug consumption showed that the majority of respondents used NSAIDs, 21 respondents (52.5%). There is a relationship between dietary factors and the frequency of gastritis recurrence seen from the relationship coefficient p-value of 0.035<0.05, with a correlation of 0.453 in the medium category. There is a relationship between stress factors and the frequency of gastritis recurrence seen from the relationship coefficient p-value of 0.021<0.05, with a correlation of 0.473 in the medium category. There is a relationship between dietary factors and the frequency of gastritis recurrence seen from the relationship coefficient p-value of 0.002<0.05, with a correlation of 0.483 in the medium category. The factor that most influences gastritis recurrence is drug consumption.

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