

Factors Associated with Functional Dyspepsia in Junior College Students of the Faculty of Nursing, University of Riau

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Abstract

Functional dyspepsia is a collection of symptoms in the form of an uncomfortable feeling in the upper abdomen, pain, bloating, early fullness, frequent belching, nausea and vomiting. This study uses a correlation descriptive research design with a cross sectional approach. The research sample was 147 respondents who were taken based on inclusion criteria using a total sampling technique. The analysis used univariate analysis to see the distribution of frequencies and bivariate using the Chi-Square test. The data collection tool used was the Perceived Stress Scale (PSS) questionnaire, eating habits, irritative diets, and functional dyspepsia which had been tested for validity and reliability. The results of this study indicate that most students experience functional dyspepsia. The results of this study indicate the factors associated with functional dyspepsia in college students, namely eating regularity (0.021). Meanwhile, factors that were not related to functional dyspepsia included stress level ($p = 0.162$), history of NSAID consumption ($p = 0.112$), and irritative diet ($p = 0.380$). There is a relationship between eating regularity and functional dyspepsia. The results of this study are expected so that students can manage their diet and maintain stomach health properly, so that the incidence of functional dyspepsia in students can decrease.

Keywords: Irritative Diet, Functional Dyspepsia, Eating Regularity, Nursing Student, NSAIDS, Stress Level



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INTRODUCTION

Many students still pay little attention to healthy lifestyles in this modern era (Huda & Dimas, 2022). Even though health is one of the most important factors in human life to support normal activities. A healthy lifestyle should have become a habit that students must apply at all times because it can improve the quality of life and can minimize exposure to various health problems (Susanti & Kholisoh, 2018). However, there are still many students who are less concerned about a healthy lifestyle. Nursing students are part of Indonesian society and moreover the nation's next generation are not spared from intense activities. In addition to participating in classroom learning, they also have to carry out various learning activities in the laboratory and in the treatment environment, both in hospitals and in the community. These activities will have an impact on healthy lifestyle behavior (Karyanah, 2018). The healthy lifestyle in question includes managing stress, managing diet, and irritative diet patterns.

The description of stress levels based on the academic stressors of Fkp UNRI students showed that 243 respondents experienced academic stress in the severe stress category totaling 138 respondents (56.8%). A study on stress and coping strategies on 512 FKp UNRI students conducted by Elita (2020) shows that the distribution of stress is based on class, it can be seen that students at the first level (A2019) have a high amount of stress and moderate stress. Nursing students during their study period mostly do not live with their parents and live in a place close to the campus so that their eating habits are not detected/no one warns them. Dietary factors and dense lecture activities can cause health problems including dyspepsia

(Augusti, 2015). An unbalanced lifestyle and diet will directly affect the digestive organs and cause gastrointestinal diseases, including digestive disorders (Susilawati, 2013). Digestive disorders can greatly interfere with daily activities and students are at risk of experiencing functional dyspepsia (Dewi, 2017).

Dyspepsia is a problem that is often found in the world. The term dyspepsia is often used to describe symptoms that are generally felt as upper stomach disorders. Based on the symptoms that appear, dyspepsia can be divided into 2 types, namely functional dyspepsia and organic dyspepsia. Organic dyspepsia appears when the cause of dyspepsia is clear. Meanwhile, functional dyspepsia occurs when the cause is not known with certainty (Rahayu, 2020). According to the epidemiology of dyspepsia syndrome cases, the number of cases of organic dyspepsia occurs as much as 40% and cases of functional dyspepsia occur as much as 60%. Based on a survey conducted in Europe, the prevalence of someone with dyspepsia is around 23-41%, of which 25% of that number has gone to the doctor (Tjokroprawiro et al., 2015). According to the Ministry of Health of the Republic of Indonesia (2010), Indonesia occupies the 5th position for the most complaints of dyspepsia in inpatients and occupies the 6th position for the most complaints of functional dyspepsia in outpatients at the hospital (Khair et al., 2019).

Based on data from the Riau Provincial Health Office (2019) dyspepsia ranks 5th for the most common diseases in Riau Province with a total of 108,631 sufferers. Meanwhile, according to data from the Health Services Division of the Pekanbaru City Health Office, Dyspepsia is also on the list of the top 10 biggest disease occurrences in the city of Pekanbaru in 2019, in 9th place with a total of 5,239 sufferers (Pekanbaru City Health Office, 2019). Rahmah (2021) has carried out research on the description of dyspepsia in students at the Faculty of Nursing UNRI (2021). The results showed that out of 215 research respondents, 124 people (57.7%) had dyspepsia. A study conducted by Nam et al. (2018) who examined the relationship between work stress and functional dyspepsia among industrial workers in South Korea showed that there was a relationship between work stress and functional dyspepsia in Korean factory workers (Nam et al., 2018).

Another factor associated with dyspepsia is the use of NSAIDs (Non-Steroid Anti-Inflammatory Drugs). Non-steroidal anti-inflammatory drugs (NSAIDs) are a type of non-steroidal drug to prevent inflammation. There are several types of NSAIDs that are often found on the market, such as ibuprofen, naproxen, meloxicam, diclofenac, and ketoprofen. According to Ade Teri Irawan's research (2015), "Risk Factors of Consuming Drugs for Dyspepsia in the Inpatient Room of Majalengka Hospital", with a p-value of 0.000 (<0.005), H₀ is rejected. This shows that there is a significant relationship between the habit of taking drugs and cases of dyspepsia. Based on the results of interviews conducted by researchers in February 2023, researchers interviewed 10 first-level students of the Faculty of Nursing, University of Riau, program A 2022 to find out the description of functional dyspepsia and what are the factors associated with functional dyspepsia in first-year students. The results of the interviews showed that 8 out of 10 students had functional dyspepsia. The most common symptoms felt by first year students were pain in the pit of the stomach, bloating, nausea, feeling full quickly, and frequent belching.

RESEARCH METHODS

This research is a quantitative research with a descriptive correlation research design using a cross sectional method. The sampling method used in this research is total sampling. This research was conducted at the Faculty of Nursing, University of Riau. The population in this study were 147 students of the Faculty of Nursing, University of Riau, class A of 2022. Data analysis using univariate and bivariate analysis. The instrument in this study used a

questionnaire. The questionnaire used was the Perceived Stress Scale (PSS) from Sheu et al (1997) which was translated into Indonesian by Salsbila (2015), eating habits, irritative diet, functional dyspepsia, and history of NSAIDs. The questionnaires that were tested were valid including the stress level questionnaire, the eating regularity questionnaire, the irritative diet questionnaire, and the functional dyspepsia questionnaire. For the 10 items of stress level questionnaire questions, the results of all valid questions were obtained with a value of r count (0.563-0.820) > r table (0.361). The results of the reliability test of the stress level questionnaire obtained the Cronbach's alpha value of 0.843. The results of the validity test of the eating regularity questionnaire showed that all statements were valid, with the range of r count (0.401-0.577) > r table (0.361) with a Cronbach's alpha value of 0.805.

The results of the validity test of the 8 question items in the irritative diet questionnaire showed that one question item was invalid, namely question number 2 with an r count of 0.051, while questions were valid with a range of r count 0.437-0.646 > r count (0.361). The results of the reliability test of the irritative diet questionnaire after issuing one invalid question obtained the Cronbach's alpha value of 0.809. Meanwhile, for the results of the validity test of the functional dyspepsia questionnaire, 7 question items were declared valid with values ranging from r count (0.477-0.760) > r table (0.361) with a Cronbach's alpha value of 0.825. So it can be concluded that all the questionnaires above are valid and reliable. This research has received ethical approval from the Ethics Committee for Nursing and Health Research, Faculty of Nursing, University of Riau. 31/UN19.5.1.8/KEPK.FKp/2023.

RESEARCH RESULTS AND DISCUSSION

Based on the results of research conducted by researchers on 147 respondents from class A 2022 at the Faculty of Nursing, University of Riau on May 17-25 2023, the following results were obtained:

Table 1. Distribution of Respondent Characteristics

No	Characteristics	Frequency (N)	Percentage (%)
1	Age		
	17 year	2	1,4
	18 year	28	19
	19 year	99	67,3
	20 year	16	10,9
	21 year	2	1,4
2	Gender		
	Male	18	12,2
	Female	129	87,8
3	Residence		
	In the Kost	98	66,7
	With Parents	35	23,8
	With Family	14	9,5
	Total		100

Table 1 shows the distribution of respondents, mostly aged 19 years with a total of 99 people (67.3%). The majority of respondents were female, totaling 129 people (87.8%). Most of the respondents lived in boarding houses/rented as many as 98 people (66.7%).

Table 2. Frequency Distribution of Respondents according to the Incidence of Functional Dyspepsia and Factors Associated with Functional Dyspepsia

Variable	Result	Frequency (N)	Percentage (%)
	Positive	95	64,6

Functional Dyspepsia	Negative	52	35,4
Total		147	100
Functional Dyspepsia Factors			
Stress Level	Ringan	15	10,2
	Sedang	84	57,1
	Berat	48	32,7
Total		147	100
Meal Regularity	Teratur	127	86,4
	Tidak Teratur	20	13,6
Total		147	100
Irritative Diet Patterns	Not Regular	133	90,5
	Regular	14	9,5
Total		147	100
NSAID Consumption Patterns	Positive	21	14,3
	Negative	126	85,7
Total		147	100

Table 2 shows that most of the respondents experienced functional dyspepsia, as many as 95 people (64.6%). The majority of respondents have a moderate level of stress, namely there are 84 people (57.1%). The majority of respondents with regular eating patterns were 127 people (86.4%). The majority of respondents with non-irritative dietary patterns were 133 people (90.5%). The majority of respondents did not consume NSAIDs every day in the last 3 months as many as 126 people (85.7%).

Table 3. Distribution of Respondents Based on the Relationship between Stress Level and Functional Dyspepsia

Stress Level	Functional Dyspepsia				Total		P value
	Dyspepsia		Not Dyspepsia		N	%	
	N	%	N	%			
Heavy	35	72,9	13	27,1	48	100,0	0,162
Currently	53	63,1	31	36,9	84	100,0	
Light	7	46,7	8	53,3	15	100,0	
Total	95	64,6	52	35,4	147	100,0	

Table 3 shows that among respondents with severe stress levels, there were 35 respondents (72.9%) who experienced functional dyspepsia and 13 respondents (27.1%) did not experience functional dyspepsia. Respondents who experienced moderate levels of stress, found that 53 respondents (63.1%) had functional dyspepsia and 31 respondents (36.9%) did not experience functional dyspepsia. The results of the chi-square statistical test obtained a p value (0.162) > α (0.05), which means that H_0 failed to be rejected. So it can be concluded that there is no relationship between stress levels and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau.

Table 4. Distribution of Respondents Based on the Relationship between Eating Regularity and Functional Dyspepsia

Meal Regularity	Functional Dyspepsia				Total		P value
	Dyspepsia		Not Dyspepsia		n	%	
	N	%	n	%			
Not Regular	18	90,0	2	10,0	20	100,0	0,021
Regular	77	60,6	50	39,4	127	100,0	
Total	95	64,6	52	35,4	147	100,0	

Table 4 shows that among the respondents with irregular eating patterns there were 18 respondents (90.0%) who had functional dyspepsia and 2 respondents (10.0%) did not experience functional dyspepsia. Meanwhile, among respondents who had a regular eating pattern, it was found that 77 respondents (60.6%) had functional dyspepsia and 50 respondents (39.4%) did not experience functional dyspepsia. The results of the chi-square statistical test on Continuity Correction obtained a p value (0.021) $< \alpha$ (0.05), which means that H_0 was rejected. So it can be concluded that there is a relationship between eating regularity and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau.

Table 5. Distribution of Respondents Based on the Relationship between Irritative Diet and Functional Dyspepsia

Irritative Diet Patterns	Functional Dyspepsia				Total		P value
	Dyspepsia		Not Dyspepsia		N	%	
	N	%	N	%			
Irritative	11	78,6	3	21,4	14	100,0	0,380
Not Irritative	84	63,2	49	36,8	133	100,0	
Total	95	64,6	52	35,4	147	100,0	

Table 5 shows that among respondents with an irritative diet, there were 11 respondents (78.6%) who experienced functional dyspepsia and 3 respondents (21.4%) did not experience functional dyspepsia. Meanwhile, among respondents who had a non-irritative diet, there were 84 respondents (63.2%) who had functional dyspepsia and 49 respondents (36.8%) did not experience functional dyspepsia. The results of the chi-square statistical test obtained a p value (0.380) $> \alpha$ (0.05), which means that H_0 is accepted. So it can be concluded that there is no relationship between irritative diet and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau.

Table 6. Distribution of Respondents Based on History of NSAID Consumption with Functional Dyspepsia

NSAID Consumption Patterns	Functional Dyspepsia				Total		P value
	Dyspepsia		Not Dyspepsia		n	%	
	N	%	N	%			
Positive	18	81,8	4	18,2	22	100,0	0,112
Negative	77	61,6	48	38,4	125	100,0	
Total	95	64,6	52	35,4	147	100,0	

Table 6 shows that among respondents with a history of positive NSAID consumption, there were 18 respondents (81.8%) who had functional dyspepsia and 4 respondents who did not experience functional dyspepsia (18.2%). Meanwhile, among respondents with a history of negative NSAID consumption, it was found that 77 respondents (61.6%) had functional dyspepsia and 48 respondents (38.4%) did not experience functional dyspepsia. The results of the chi-square statistical test obtained a p value (0.112) $> \alpha$ (0.05), which means that H_0 failed to be rejected. So it can be concluded that there is no relationship between history of NSAID consumption and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau.

Discussion

Respondent Characteristics

Research conducted on 147 respondents showed that the majority of respondents were female, totaling 129 respondents (87.7%). This is because the Faculty of Nursing is more dominated by women than men. This is in accordance with the 2023 student statistics for the Faculty of Nursing, University of Riau, which shows that in the first year there are 156 female

students, while the number of male students consists of 21 students. Characteristics of respondents based on age of 147 respondents can be seen that the majority of respondents aged 19 years amounted to 99 respondents (67.3%). In this study, respondents were in the age range of 17-21 years. According to Al Amin and Juniati (2017) the age range of 17–25 years is considered the late adolescent age range. First year students are a period of transition from school to academic level and a change in status from student to student (Ramadhanti et al., 2019)

Based on the results of research conducted on 147 respondents, the majority of respondents lived in boarding houses/rented as many as 98 respondents (66.7%). According to researchers, the majority of students studying Nursing do not come entirely from urban communities who live in Pekanbaru. This is supported by Toisuta (2018) which states that every high school graduate leaves their homes and hometowns to become students and study in a college environment. The results showed that most of the students experienced functional dyspepsia, namely 95 people (64.6%). This shows that more than half of the first-year students at the Faculty of Nursing, University of Riau experience dyspepsia. College students are individuals who are entering young adulthood with an age range (18-30 years). This age is entering the age when individuals begin to adjust to many things, starting from the environment and the student's own lifestyle. In the busy life of students, it is often the case that daily eating matters are no longer directly supervised by parents. This has an impact on the decisions of students who choose to eat instant, cheap food, or even not eat at all. This is triggered by the level of stress faced in adapting to the environment and also academically (Rusyadi, 2017).

Functional Dyspepsia and Factors Associated with Functional Dyspepsia

Rahmah (2021) has carried out research on the description of dyspepsia in students at the Faculty of Nursing UNRI (2021). The results showed that out of 215 research respondents, 124 people (57.7%) had dyspepsia. The most common symptom experienced by nursing students was satiety with 119 female respondents (55.3%) and 5 male respondents (2.3%). The results showed that most students experienced moderate levels of stress, namely 84 people (57.1%). It can be concluded that more than half of the respondents experienced moderate stress. These results are in line with research conducted by Hutabarat et al. (2022) which showed that the majority of first year students at the Faculty of Nursing, University of Riau experienced moderate stress (52.2%).

According to Priyoto (2019), the signs and symptoms of moderate stress are stress that lasts longer, between several hours to several days. This stressor can cause symptoms, including irritability, overreacting to a situation, having difficulty resting, feeling tired because of anxiety, being impatient when experiencing delays and facing disruptions to what is being done, irritability. Elita's research (2020) examined stress and coping strategies in 512 FKp UNRI students. If you look at the distribution of stress by class, it can be seen that students in the first level (A2019) have moderate and high levels of stress. Based on these data, it can be concluded that first year students are more at risk of health problems, namely stress than other batches.

The results showed that the majority of students had a regular eating pattern of 127 students (86.4%). This is contrary to research conducted by (Irfan, 2019) on students of the Faculty of Medicine at UIN Syarif Hidayatullah Jakarta in 2019, that the majority of respondents had an irregular eating pattern of 58 respondents (64.4%). First-year students at the Faculty of Nursing, University of Riau, have a busy lecture schedule starting from doing assignments, writing papers, tutorials, skill labs, expert lectures, seminars, and plenary sessions. According to Dewi (2017), students who have solid activities will influence their healthy life behavior,

especially in student diets. The busyness of these students will have an impact on the time or hour of eating so that even though it is time to eat, students often postpone and even forget the time to eat (Dewi, 2017). However, the results of the study showed that most of the first year students of the Faculty of Nursing, University of Riau had a regular eating pattern. This shows that in the midst of busy and busy lectures, the majority of first year students at the Faculty of Nursing, University of Riau pay attention to the regularity of their diet.

The irritative eating pattern of the respondents found that 133 respondents with a non-irritative diet pattern were 133 respondents (90.5%). Research conducted by Rusmanto et al. (2022) on students of the Faculty of Medicine, University of Muhammadiyah Malang, that found that the majority of respondents, as many as 36 people (60%) did not eat irritating foods. Irritative foods can interfere with the digestive system, especially the stomach and intestines, if consumed too much. (Rusmanto et al., 2022). The results showed that the majority of students had a negative history of consuming NSAIDs, as many as 126 students (85.7%). Non-Steroid Anti-Inflammatory Drugs (NSAIDs) are drugs that are often prescribed by doctors and sold freely in the community (Zahra & Carolia, 2017). NSAIDs are often used because of their good effectiveness as analgesics, anti-inflammatory and antipyretic. Examples of NSAIDs include mefenamic acid, diclofenac, meloxicam, Ibuprofen, Etoricoxib, Piroxicam, Celecoxib, and so on (Idacahyati et al., 2019).

The Relationship between Stress Levels and Functional Dyspepsia

Research that has been conducted on 147 respondents, shows that 53 respondents (63.1%) with moderate levels of stress experience functional dyspepsia. The results of the chi-square statistical test obtained a p value (0.162) > α (0.05), which means that H_0 failed to be rejected. So it can be concluded that there is no relationship between stress levels and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau. The results of this study are in line with research conducted by Yasin (2018) which showed no relationship between stress levels and the incidence of dyspepsia syndrome in children aged 10-14 years in the Bluto Health Center Work Area (p-value = 0.327). Stress is thought to be related to dyspepsia syndrome where acute stress can affect the function of the digestive tract, namely a decrease in gastric contractility that precedes nausea after a central stress stimulus (Putri et al., 2022).

The Relationship between Eating Regularity and Functional Dyspepsia

Dyspepsia can be caused by eating schedules that are irregular, in a hurry, and unhealthy eating habits (Dewi, 2017). The results of the chi-square statistical test based on the relationship between eating regularity and functional dyspepsia in junior high school students obtained a p value (0.021) < α (0.05) which means H_0 was rejected. So it can be concluded that there is a relationship between eating regularity and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau. The results of this study are in line with research conducted by Octaviana et al. (2021) that there is a relationship between irregular eating patterns and the incidence of dyspepsia (p=0.001).

Relationship of Irritative Diet Patterns with Functional Dyspepsia

Foods that are irritating can stimulate excessive gastric acid secretion, causing dyspepsia syndrome. In addition, foods that are irritating can also stimulate increased motility or peristalsis of the digestive organs, causing inflammation and injuries to the walls of the digestive organs (Kirani, 2022). The results of the chi-square statistical test obtained a p value (0.380) > α (0.05), which means that H_0 is accepted. So it can be concluded that there is no relationship between irritative diet and functional dyspepsia in first year students of the

Faculty of Nursing, University of Riau. This is in line with research conducted by Parawansa (2021) regarding the relationship between eating regularity and irritative diets and dyspepsia in students of the Faculty of Medicine, Sriwijaya University, obtained data that there was no significant relationship between irritative diets and dyspepsia (p -value = 0.079) (Parawansa, 2021).

Correlation between History of NSAID Consumption and Functional Dyspepsia

The results of the chi-square statistical test obtained a p value (0.112) $>$ α (0.05), which means that H_0 failed to be rejected. So it can be concluded that there is no relationship between history of NSAID consumption and functional dyspepsia in freshman students. NSAIDs (non-steroidal anti-inflammatory drugs) most often cause side effects that attack organs such as the heart and digestive tract because they mostly work by inhibiting prostacyclin. As a result, NSAIDs concentrate on acidic tissues such as the stomach, kidneys and inflammatory tissues (Hanifah et al., 2021). Amrulloh and Utami (2016) found that the use of NSAIDs can cause gastritis through two mechanisms, namely local and systemic.

CONCLUSION

Based on the results of research on "Factors Associated with Functional Dyspepsia in Junior High School Students at the Faculty of Nursing, University of Riau" on 147 respondents, it was concluded that the majority of respondents were female, aged 19 years, lived in boarding houses/rented, experienced functional dyspepsia, experiencing moderate stress levels, eating regularly, dietary patterns are not irritating, and have a history of negative NSAID consumption. This study shows that there is a significant relationship between eating regularity and functional dyspepsia in first year students of the Faculty of Nursing, University of Riau. However, this study shows that there is no relationship between stress levels, irritative diet patterns, and consumption of NSAIDs with functional dyspepsia in first year students of the Faculty of Nursing, University of Riau.

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