



HUBUNGAN STRES AKADEMIK DENGAN KEJADIAN DISPEPSIA PADA MAHASISWA RUMPUN ILMU KESEHATAN UNIVERSITAS INDONESIA

The Correlation between Academic Stress Level and Incidence of Dyspepsia within Health Science Cluster Students

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Riwayat artikel

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Abstrak

Pendahuluan: Dispepsia adalah sekelompok gejala yang menunjukkan adanya penyakit saluran cerna bagian atas. Kondisi ini umumnya terjadi pada mahasiswa ilmu kesehatan yang disebabkan oleh stressor seperti stress akademik. **Tujuan:** untuk menganalisis hubungan stress akademik dengan kejadian dispepsia pada mahasiswa Gugus Ilmu Kesehatan. **Metode:** Penelitian ini merupakan penelitian deskriptif analitik dengan desain cross sectional yang melibatkan 283 siswa yang diperoleh dari metode proporsional cluster random sampling. Skala stress akademik dan kuesioner gejala dispepsia sama-sama digunakan dalam pengumpulan data. **Hasil:** Analisis data menunjukkan terdapat 54,4% siswa yang mengalami stress akademik sedang dan 17,3% siswa mengalami gejala dispepsia. Selain itu, analisis dengan korelasi spearman menunjukkan bahwa terdapat hubungan yang positif dan tidak signifikan antara stress akademik dengan kejadian dispepsia ($pvalue = 0,188$; $r = 0,079$). **Simpulan:** Stress akademik berhubungan dengan kejadian dispepsia. Penelitian ini dapat dijadikan sebagai informasi untuk melakukan penelitian terkait faktor lain penyebab dispepsia. Mahasiswa diharapkan mampu menerapkan pola makan yang baik dan menerapkan pola hidup sehat.

Abstract

Background: Dyspepsia is a group of symptoms that indicate upper gastrointestinal disease. This condition occurs commonly in health science students which are caused by stressors such as academic stress. **Objective:** to analyze the correlation between academic stress and the incidence of dyspepsia in the Health Science Cluster students. **Method:** This was a descriptive analytic study with cross sectional design that involved 283 students gained from proportional cluster random sampling method. Academic stress scale and dyspepsia symptom questionnaire were both applied in collecting data. **Results:** The data analysis showed there were 54,4% students that had moderate academic stress and 17,3% students experienced dyspepsia symptoms. Additionally, the analysis with spearman correlation showed that there was a positive and not significant correlation between academic stress and the incidence of dyspepsia ($pvalue = 0,188$; $r = 0,079$). **Conclusion:** Academic stress is association with the incidence of dyspepsia. This research can be used as information to conduct research related to other factors causing dyspepsia. Students are expected to be able to adopt a good diet and adopt a healthy lifestyle.

INTRODUCTION

Dyspepsia is one of the most common upper gastrointestinal problems in the community. Dyspepsia is a collection of symptoms that show disease in the upper gastrointestinal tract characterized by epigastric pain, burning sensation in the epigastrium, fast satiety, and feeling full after eating (Kumar, Patel, & Sawant, 2012). Based on research showing several causes and risk factors for dyspepsia, namely eating habits, lifestyle, smoking habits, alcohol consumption, sleep disorders, consumption of high-fat foods, use of NSAIDs, psychosocial factors, psychological conditions, and bacterial infection of *Helicobacter pylori* (Lacy, Dibaise, Pimentel, & Ford, 2019; Miwa et al., 2015; Talledo-ulfe, Buitrago, Filorio, Casanova, Campos, Cortés, et al., 2018). The prevalence of uninvestigated dyspepsia and functional dyspepsia in Asia is 8-30% and 8-23% (Ghoshal et al., 2011). Dyspepsia was included in the top 10 most illnesses in outpatients in hospitals in Indonesia in 2010, as many as 88,599 cases (the Indonesian Ministry of Health, 2011). Symptoms of dyspepsia can occur in all walks of life, including students.

Students constitute an aggregate transition from late adolescence to early adulthood which is classified at the age of 18-29 years full of challenges (Potter, Perry, Stockert, & Hall, 2013). Thus, students have multiple stressors such as academic stress, problems with self-concept, competition, financial problems, fears about the future, and problems of interpersonal relationships (Gregory, 2015; Tosevski, Milica, & Gajic, 2010). Multiple stressors are especially common among health students. The most dominant cause of stress on students is academic factors compared to other factors (Waghachavare et al., 2013; Yumba, 2008). Academic factors that cause stress in dyspepsia are limited rest or eating time, uneven distribution of tasks, heavy learning load, tedious activities, the deadline for assignments (Jaber et al., 2016). These stress conditions can contribute to the incidence of dyspepsia.

Research shows that 51.7% of pre-clinical medical students experience dyspepsia (Jaber et al., 2016). Other studies have shown that 46% of health students in Latin America experience uninvestigated dyspepsia caused by (Talledo-ulfe, Buitrago, Filorio, Casanova, Campos, Cortés, et al., 2018). Research on nursing

students as much as 66.2% experienced dyspepsia affected by stress levels (Khotimah & Ariani, 2011). In addition, researchers also conducted a study of 2018 RIK UI students showing 49 (17.3%) had dyspepsia. The prevalence of dyspepsia in health students can be caused by high psychological stress in environmental demands (Tabibzadeh et al., 2018).

Several studies have shown a significant relationship between stress and gastrointestinal symptoms. Research shows nursing students who have high levels of stress perception have a 3.52 times higher chance of experiencing gastrointestinal symptoms (Lee, Mun, Lee, Soon, & Cho, 2011). Other studies have shown a link between depression and anxiety conditions and the incidence of dyspepsia in medical students. Students who experience depression have 1.38 times the chance of dyspepsia (Talledo-ulfe, Buitrago, Filorio, Casanova, Campos, Cortés, et al., 2018). Currently, there are many studies about stress with an illness, but research on academic stress on students and the incidence of dyspepsia in health students as a whole does not yet exist.

Previous studies on this topic have shown that many health students have dyspeptic complaints. In fact, knowledge of health students should have good knowledge about healthy lifestyles because of a health role model. There is no research on the relationship between academic stress and the incidence of dyspepsia in health students as a whole to analyze academic stress with the incidence of dyspepsia in health students. Based on this, this research identifies the level of academic stress, the prevalence of dyspeptic events, and analyzes the relationship of academic stress with the incidence of dyspepsia in students of the 2018 class of Health Sciences UI consisting of FKG, FIK, FKM, and FF.

METHOD

Dyspepsia in this study contained 6 questions referring to Rome IV and dyspepsia symptoms based on textbooks and journals, namely pain or burning sensation in epigastrium, feeling full after eating normal / normal food portions, feeling full quickly, nausea after eating, excessive belching, and vomiting after eat. The Academic Stress Scale questionnaire was used to determine the respondent's

academic stress level consisting of 40 questions. The highest score results indicate that the level of academic stress is high. This instrument has been translated into Indonesian and validity testing (0.361-0.603) and reliability was very high ($r = 0.963$) (Awaludin, 2015).

The researcher also identified respondents' sociodemography such as age, gender, faculty, residence, pocket money. The researcher also identified respondents' eating patterns which consisted of frequency of eating and eating patterns which included the amount, type, time and regularity of eating. Data processing in this study is as follows: 1) Editing, the process of selecting data; 2) Coding, giving code; 3) data entry, entering data; 4) cleaning, making sure the data is correct.

Data analysis in this study consisted of univariate analysis and bivariate analysis. Univariate analysis to determine the frequency and proportion of respondents' sociodemography, respondent eating patterns, dyspepsia events, and respondents' academic stress levels. While the bivariate analysis to analyze the relationship between academic stress and the incidence of dyspepsia using the Spearman correlation test.

RESULTS

Sociodemography of Respondents

Table 1: Respondents' Sociodemography by Gender, Faculties, Residence, and Income and dietary habit (n = 283)

Sociodemography	Frequency	Percentage (%)
Gender		
- Male	33	11.7
- Female	250	88.3
Faculties		
- Dentistry	46	16.3
- Nursing	46	16.3
- Pharmacy	63	22.3
- Public health	128	45.2
Stay with		
- Parents	148	52.3
- Relative	10	3.5
- Independent/boardin g house	125	44.2
Income		
- Low (< Rp 1.350.000)	152	53.7

- High (> Rp 1.350.000)	131	46.3
Eating habits		
Poor	151	53.4
Good	132	46.6

The majority of respondents were 250 women (88.3%). Faculty distribution shows the majority of respondents came from the faculty of public health (FKM) which is 128 (45.2%). In terms of the respondent's residence, the majority of respondents live with parents of 148 (52.3%). Meanwhile, when viewed from food income, the majority of respondents had a low income as much as 152 (53.7%)

Academic stress level and dyspepsia

In this study, stress categories are divided into 3 namely mild stress, moderate stress, and severe stress. The majority of respondents have a moderate level of academic stress that is 125 (54.4%). Respondents who experienced dyspepsia were 49 people (17.3%) while respondents who did not experience dyspepsia were 234 people (82.7%)

Table 2: Academic Stress Levels of Respondents (N = 283)

Academic Stress Level	Frequency (n=283)	Percentage (%)
Mild	113	39.9
Moderate	154	54.4
Severe	16	5.7
Dyspepsia		
No	234	82.7
Yes	49	17.3

The correlation between academic stress and dyspepsia

Table 3: Relationship between Academic Stress and Dyspepsia (n = 283)

Academic Stress	Dyspepsia				<i>p value</i>	Coefficient of correlation (r)
	No		Yes			
	n	%	N	%		
	Mild	93	86.1	15		
Moderate	12	81.1	30	18.9	0.188	0.079
Severe	9	75.0	4	25.0		
Total	23	82.7	49	17.3		
	4					

The results of the analysis using Spearman correlation, obtained $p = 0.188$ which indicates that the correlation between academic stress and the incidence of dyspepsia is not statistically significant. A correlation value of 0.079 indicates a positive correlation, with the strength of the correlation being very weak and not clinically meaningful. The positive correlation in this study is that the higher the level of academic stress, the higher the incidence of dyspepsia (Table 3).

DISCUSSION

Academic stress is stress that comes from academics on campus. The results of the analysis of academic stress on the 2018 RIK UI Regular S1 students showed that the majority of respondents had moderate academic stress 154 (54.4%) with the cause of severe stress ie the material tested during the exam was very large. Other studies that are in line with this research are research on S1 Putra Malaysia University students consisting of 376 respondents from 15 faculties showing that undergraduate students have moderate stress levels with medical and health students having the highest average stress with the greatest stressors is academic stress (Elias, Ping, & Abdullah, 2011). Other studies that are in line show that the level of academic stress in the majority of health students is moderate compared to that of 64 (83.1%) (Yikealo, Yemane, & Karvinen, 2018). Stress has several levels because a person has a stress response that varies depending on one's ability to interpret the stimulus and in dealing with stressors. This has been explained by Lazarus & Folkman (1984), that stimulus becomes stressor when it produces a stressful behavior or physiological response and a stressful response results from a demand, threat, or burden. This condition is also in line with the conceptual model of biology and behavior in which stressful responses result from interpretations by the nervous system that are influenced by several factors (Rice, 2012).

The sources of stress in this research instrument consisted of five namely

interpersonal problems that cause stress, personalities related to stress, environments that cause stress, changes that induce stress, and stress caused by system problems (Rao, 2012). When viewed from the results of the study, the source of the respondent's academic stress comes from system problems related to too much material being studied during the exam. That is because students are in the first year who still need adaptation to the academic system of the faculty. According to the researchers, the student learning environment also supports academic activities at the UI Health Sciences Cluster, in addition to the residential environment, the majority of students live with parents of 148 (52.3%), so the environment is sufficient to support to adapt better to new students compared to the academic system stressor.

The incidence of dyspepsia in this study is based on symptoms experienced by respondents, namely pain or burning sensation in the epigastrium, feeling full after eating a normal portion, feeling full quickly, nausea after eating, excessive belching, and vomiting after eating. The results showed that the 2018 RIK UI Regular S1 students who experienced dyspepsia were 49 people (17.3%) while respondents who did not experience dyspepsia were 234 people (82.7%). The prevalence of dyspepsia from various studies has varied results depending on the criteria used to enforce dyspepsia. This study uses a general definition of dyspepsia, which is said to be dyspeptic if it has epigastric pain accompanied by at least one of the symptoms of dyspepsia, which is fullness after eating or being full quickly. The prevalence study of uninvestigated dyspepsia in Singapore uses the definition of upper abdominal pain as a result of 7.9% (Ho, Kang, & Seow, 2012). Other studies that are in line also show that the prevalence of dyspepsia using the definition of epigastric discomfort or pain is 20.4% (Ford et al., 2015). Many studies around the world produce different results about the prevalence of dyspepsia, this difference may be caused by various characteristics of the

population analyzed, lifestyle, and diagnostics with different criteria (Saadi, Idris, Turk, & Alkhatib, 2017; Talledo-ulfe, Buitrago, Filorio, Casanova, Campos, & Cortés, 2018).

This study shows that there is no significant relationship between academic stress and the incidence of dyspepsia. In contrast to these results, a study of pre-clinical students at Ajman showed that there was a statistically significant relationship between dyspepsia and academic factors with a p value <0.05 to be exact 0.001 (Jibril et al., 2016). Another study of Korean health students experiencing digestive diseases showed that there was a relationship between stress and dyspepsia ($P < 0.001$) (Lee et al., 2015). Another study that is in line with this study in Saudi Arabia is that there is no significant difference between dyspepsia patients and controls in relation to stressful life events (Hafeiz, Al-Quorain, Al Mangoor, & Karim, 1997). There are no other studies that have analyzed academic stress with dyspepsia. The relationship between stress and gastrointestinal symptoms has a very strong theoretical basis, but in this study using one type of stress namely academic stress gives insignificant results because it is likely caused by several factors namely data problems, reliability of measuring instruments, and the presence of other variables (Widhiarso, 2017).

When reviewed from the data the results of the study showed that the data of respondents who experienced severe academic stress and experiencing dyspepsia were only a little, namely 4 people (25%) out of a total of 16 respondents compared to those who were severely stressed and were not dyspeptic in 12 people (75%). This shows that more severe academic stress does not experience dyspepsia than those with dyspepsia resulting in insignificant correlations. In addition, the correlation value of this study is 0.079 very weak in line with several studies related to stress namely the low effective contribution of stress to clinical symptoms because there are several

moderating variables because humans are multidimensional and influenced by many factors and interact between factors (Widhiarso, 2017). In this study, it is likely caused by the many factors that can cause dyspepsia in research respondents who not only come from academic stress, that is, respondents also have poor diet (151 (53.4%) and have low food intake money 152 (53.7%)). In addition, variations in the definition of dyspepsia both in Indonesia and internationally lead to different results in diagnosing dyspepsia. Globally, variations in the diagnosis of dyspepsia depend on the use of the definition of dyspepsia which will influence the prevalence of dyspepsia (Ford et al., 2015; Ford & Moayyedi, 2013; Pittayanon et al., 2019). This certainly contributes to the reliability of measuring devices for dyspepsia symptoms.

If the relationship between academic stress and dyspepsia is analyzed by theory, it can be related to physiological stress response, which is a stress condition that can affect physiological health, including the gastrointestinal tract. The mechanism of dyspepsia pathogenesis is abnormal gastrointestinal motility causing gastric fundus accommodation abnormalities, and gastric emptying can be caused by psychosocial factors because stress increases levels of Corticotrophin releasing factor (CRF) and adrenocorticotrophic (ACTH) which can have an impact on gastric emptying (Yarandi & Christie, 2013). Stressors use subcortical circuits that induce hypothalamic effect neurons to release CRF as the most important mediator of the central stress response. Then, the pituitary gland responds to CRF by releasing the ACTH hormone to stimulate adrenal gland secretion and stress hormones. In addition, the role of mast cells is also important in interpreting stress signals to the gastrointestinal tract because it has a CRF receptor. Dyspepsia caused by stress occurs due to abnormalities in the brain gut axis. That is because chronic stress can cause excessive axillary pituitary adrenal shaft (HPA) axis, causing hyperchotolaemia. The

part of the brain involved in visceral stimulation can cause changes in this structure which results in hypersensitivity. Increased sensitivity to visceral and psychological stimuli contributes to epigastric discomfort (Barry & Dinan, 2006; Konturek et al., 2011; Vishnar et al., 2000).

Researchers concluded that most respondents were still able to adapt to academic stress because the majority of respondents were in moderate academic stress and were not experiencing dyspepsia. This is in line with research on 39 FKG UI students that the results of the significance test on cortisol levels of FKG UI academic program students between mild and moderate stress were not significant differences namely $p = 0.456$. This relates to the way individuals treat stress (Hokardi, 2013). This condition is also in line with previous studies which stated that different coping strategies provide different stress responses on the HPA axis (cortisol) to gastrointestinal complaints (Bohnen & Nicolson, 2011). Other studies have also shown that dyspeptic patients show longer gastric emptying times than controls, but mental stress does not affect the level of gastric emptying in both patients and controls (Giorgi et al., 2012).

Researchers realize there are still limitations in this study, namely the dyspepsia instrument used by researchers uses a broad definition of dyspepsia because the clinical definition of dyspepsia is not uniform. In addition, the respondents in this study were the population of UI's Health Sciences students who could not include students of the Faculty of Medicine because of administrative constraints. This study also does not examine the number of respondents who bring food or food from home that is related to income for eating respondents. The researcher also did not examine respondents' coping strategies related to respondents' adaptation to academic stress.

CONCLUSION

The majority of academic stress levels in this study have moderate academic stress levels and there are still students who experience severe academic stress. Dyspepsia can be one of the physical health problems caused by these academic stress factors. The results of the study showed 17.3% of respondents had dyspepsia. the level of academic stress on students depends on students' perceptions in responding to academic problems that have implications for the body's homeostasis response that causes dyspepsia. This study shows a positive and insignificant correlation between academic stress and the incidence of dyspepsia.

This research can be used as information to conduct research related to other factors causing dyspepsia. Students are expected to be able to adopt a good diet and adopt a healthy lifestyle. In addition, educational institutions are expected to provide socialization about good eating patterns and dyspepsia.

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