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THE CORRELATION OF ANXIETY IN DEALING WITH OBJECTIVE STUDENT ORAL CASE ANALYSIS (OSOCA) EXAMINATION ON THE CASE OF FUNCTIONAL DYSPEPSIA IN THE FIRST SEMESTER MEDICAL STUDENTS

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ABSTRACT

Background: Anxiety is a psychological reaction caused by a variety of factors, one of which is when a student has an examination. Objective Student Oral Case Analysis (OSOCA) is one of the examinations that is a main indicator of learning achievements of medical students in the faculty of medicine. Anxiety can cause a variety of other health problems, such as functional dyspepsia. This study aims to analyze the correlation of anxiety in dealing with objective student oral case analysis (OSOCA) examination and the cases of functional dyspepsia in the first semester medical students.

Methods: This research was an observational study with a cross-sectional design. A total of 132 medical students were recruited as respondents. Zung Self-rating Anxiety Scale (ZSAS) questionnaire was used to asses anxiety and a questionnaire based on Rome III criteria that was previously validated was used to measure functional dyspepsia. The data were analyzed using Spearman correlation test and prevalence ratio was determined.

Results: The result based on Spearman correlation test showed significant weak positive correlation between anxiety and functional dyspepsia with r=0,295 (p=0,001). Student with moderate anxiety scales have 5 times greater risk of functional dyspepsia than student who have mild anxiety scales (PR=5,300).

Conclusion: There is a significant correlation between anxiety and functional dyspepsia. Students with moderate anxiety scales have 5 times greater risk of functional dyspepsia than students who have mild anxiety scales.

Keywords: Anxiety Scale, Functional dyspepsia, OSOCA.

INTRODUCTION

Dyspepsia is a health problem commonly found in the communities. It is characterized by complex symptoms such as epigastric pain, bloating, nausea, and vomiting, belching, feeling full, easily full, and burning sensation in the epigastric. Dyspepsia causes high morbidity in the community. In the United States and other European countries, the prevalence of dyspepsia ranges from 23% to 41% [1].

Data from the Indonesian Ministry of Health in 2010 showed the high prevalence of dyspepsia in Indonesia, where dyspepsia was ranked 5th on the list of the 10 most diseases in hospitalized patients in Indonesia with 9,594 male patients and 15,122 female patients, and caused death at 166 people. In addition, it was ranked 6th on the list of the 10 most disease patterns outpatients with a total of 34,981 male patients and 53,618 female patients with a new number of dyspepsia cases of 86,599 [2].

A population-based study in 2007 shows that there was increasing prevalence of functional dyspepsia from 1.9% in 1988 to 3.3% in 2003. In 2010, Functional dyspepsia had a prevalence of 5% of all visits at primary health facilities in Indonesia [3]. Functional dyspepsia has several main pathophysiology,

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including motility disorders, sensory visceral abnormalities, and psychological factors. One of the psychological factors that can cause functional dyspepsia is anxiety [3].

The results of research conducted at the University of Riau Faculty of medicine Universitas Riau, showed that as many as 77 medical students (55.8%) were positively diagnosed dyspepsia.[7] Other studies show that as many as 66.3% of students who had anxiety with different levels the highest percentage is 24.7%, namely mild anxiety. While the results of measurement of dyspepsia levels from the study showed that 77.5% of respondents had mild dyspepsia, and 22.5% of respondents had moderate dyspepsia. the results of this study also explain that the incidence of dyspepsia syndrome in students can also be caused by anxiety.

Anxiety can trigger the secretion of the hormone cortisol, wherein this hormone will then work to coordinate the entire system in the body including in the gastrointestinal system [4]. The effects on the gastrointestinal tract can lead to increased gastric acid, motility disorders, and vascularity indigestion. As a result, it can lead to symptoms such as epigastric pain, bloating, nausea, vomiting, belching, feeling full, easily full, and burning sensation in the epigastric [4]. In the early semester, students may assume that they are experiencing a change in the environment from high school to college level which have them to adapt to the new environment. This situation makes them tend to feel anxious especially for medical students who have many important roles in their fields; thus, they tend to have high levels of anxiety [5]. The objective of this study is to analyze the effect of anxiety scale in dealing with objective student oral case analysis (OSOCA) examination on the case of functional dyspepsia in the first semester medical students.

METHODS

This research got an approval from the Ethics Commission of the Faculty of Medicine, Universitas Swadaya Gunung Jati No. 44/EC/FK/IX/2018. Respondents were given an explanation of the research conducted, namely objectives, benefits, research procedures and guarantees of the confidentiality of all information and personal data of respondents. Then respondents who were willing to be volunteer to participate in this study were asked for written approval by filling out the informed consent. Sampling was carried out around 1 hour to 30 minutes before the OSOCA examination began. The independent variable of this study was anxiety and the dependent variable was functional dyspepsia.

The method used for this research was observational analytic study with cross-sectional approach. Simple random sampling technique was used to determine 132 medical students in the first semester who would dealing with OSOCA examination using the Slovin formula. Data were collected in December 2018 at Faculty of Medicine, Universitas Swadaya Gunung Jati. The inclusion criteria in this study were first semester students who took the OSOCA examination and were willing to be respondents in this study. Meanwhile, the exclusion criteria in this study were other students who repeated the OSOCA examination, students who had a history of previous dyspepsia and students who were taking anti-anxiety drugs, no one dropped out in this study.

This study used the Zung Self-rating Anxieting Scale (ZSAS) questionnaire which was validated to measure scale of anxiety. Groups of anxiety levels were divided into 3 categories, namely mild anxiety level with Self-rating Anxiety Scale (ZSAS) 20-44, moderate anxiety with Self-rating Scale (ZSAS) 45-59 questionnaire and severe anxiety with Zung Self-rating questionnaire total score Anxiety Scale (ZSAS) 60-80 and a questionnaire based on Rome III criteria that was previously validated to measure functional dyspepsia. According to the Roma III guideline, medical students were diagnosed with functional dyspepsia if they had one or more of 4 cardinal symptoms (initial glut, postprandial fullness, epigastric pain, and epigastric burning sensation). It must be present for the last 3 months with symptom onset and at least 6 months before diagnosis without the presence of organic, systemic or metabolic disease. The correlation between of anxiety scale and the case of functional dyspepsia in the first semester students was analyzed using the Spearman correlation test and ration prevalence test.

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RESULT
Characteristics of Respondents

Table 1. Characteristics of Respondents

NO	Characteristics	Frequency (N)	Percentage (%)
1	Sex		
	Male	40	30.3
	Female	92	69.7
2	Age of student		
	16-years-old	2	1.5
	17-years-old	7	5.3
	18-years-old	73	55.3
	19-years-old	43	32.6
	20-years-old	7	5.3
3	Anxiety Scale		
	moderate	110	83.3
	mild	22	16.7
4	Anxiety scale based on gender		
	Male	40	30.3
	Female	92	69.7
5	Anxiety scale based on age		
	16-years-old	2	1.5
	17-years-old	7	5.3
	18-years-old	73	55.3
	19-years-old	43	32.6
	20-years-old	7	5.3
6	Functional dyspepsia		
	Positive	55	41.7
	Negative	77	58.3
7	Functional dyspepsia based on gender		
	male	18	14.6
	female	37	28.0
8	Functional dyspepsia based on age		
	16-years-old	1	0.8
	17-years-old	5	3.8
	18-years-old	36	27.3
	19-years-old	13	9.8
	20-years-old	0	0.0

Most respondents in this study were female students, i.e. 92 respondents, while male students were 40 respondents. The age of most respondents in this study was around 18-years-old, i.e. 73 respondents, followed by 19-years-old, i.e. 43 respondents. A total of 132 respondents in this study had anxiety; some of them had moderate level of anxiety, i.e. 110 respondents and some had mild level anxiety, i.e. 22 respondents. Most of those who had anxiety were women, i.e. 92 respondents, and men respondents were 40 respondents.

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Bivariate Analysis

The hypothesis concerned with the correlation between anxiety and functional dyspepsia in first semester medical students. The results presented in Table 2 indicate that a significant correlation of 0.001 (< 0.05) and R 0.29.

Table 2. The effect of anxiety scales in dealing with OSOCA examination on the first semester medical students

Variable	Functional Dyspepsia	
	R	p-Value
Anxiety scales	0.295	0.001

Table 2 shows that the Spearman static analysis test indicates significant relationship between anxiety scales and functional dyspepsia with p-value = 0.001 and weak correlation, i.e. r = 0.295.

Table 3. Prevalence

		Functional Dyspepsia		Total	PR	(95% Interval)	Confident
		Positive	Negative			Lower	Upper
Anxiety Scales	Moderate	53	57	110	5.300	1.394	20.151
	Mild	2	20	22			
Total		55	77	132			

Table 3 shows that students with moderate anxiety scale have 5 times greater risk of developing functional dyspepsia than students who have mild anxiety levels.

DISCUSSION

In this study there were 132 respondents with age (16-20), age 16 years old 1 (1.5%), 17 years old 7 (5.3%), 18 years old 73 (55.3%), 19 years old 43(32.6%) and 20 years old 7 (5.3%). Based on gender females 92(69.7%) and male 40 (30.3%). This study showed that 132 respondents were diagnosed with anxiety. There were 110 students with moderate scales of anxiety and 22 students with mild anxiety scales. A similar finding was also observed by Andriane Y, et al. that all of first grade students of the Faculty of Medicine in Bandung, Indonesia diagnosed anxiety. The students had both mild, moderate, severe, and very severe anxiety before dealing with the OSOCA exam [8]. In this study, based on the distribution of respondents according to gender in this study, 92 female students were diagnosed with anxiety, and 40 other respondents were male students. Kaplan and Sadock [11] stated that anxiety occurs more in women. Women have a high level of anxiety because of the result of excessive autonomic nerve reactions with an increase in the sympathetic system, increased norepineprine, an increase in cotalamin release, and an abnormal disorder of serotonergic regulation. The results of this research are consistent with the results of demak and suherman's study They presented a significant relation between There was a relationship between student gender with anxiety levels (p = 0.000) with ($\alpha = 0,05$).[12]

Based on the age of the respondents, the most diagnosed with anxiety were 18 years old student as many as 73 students and 19 years old student as many as 43 students. While the least diagnosed age with anxiety is students who are 16 years old, only as many as 2 students. Based on Rome III criteria, 55 students were diagnosed with functional dyspepsia, those female with diagnosed func tional dyspepsia were 37 students and male were 18 students. Based on age, students diagnosed with functional dyspepsia in this study were students aged 18 years, as many as 36 students, and aged 19 as many as 12 students.

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Whereas for students aged 20 years, there were not functional dyspepsia. This study was similar to the research conducted Putri, RN et al., Which stated that the number of cases of dyspepsia was mostly experienced by students aged 18 ye ars with a total of 94 people (68.1%).[8]

In this study, the effect of the of anxiety in dealing with OSOCA examination with the case of functional dyspepsia in first semester students used Spearman analysis test and prevalence ratio obtained the results of p value= 0.001 and r = 0.295 and PR = 5.300. It could be interpreted that there was a significant correlation between anxiety with functional dyspepsia in the first semester students, students with moderate levels of anxiety, 5 times higher risk of functional dyspepsia than students who had mild anxiety. This study was similar to the research by Sutanto and Angelia who examined the relationship of anxiety scales with dyspepsia severity in students of one of faculty of medicine in Bandung, Indonesia. Study showed that anxiety affects the severity of dyspepsia. The higher the anxiety scale, the more it will affect the severity of dyspepsia with a value of p = 0.018 [10]. Another study in China showed that the anxiety scale had a significant relationship with the incidence of functional dyspepsia with a value of p <0.001 [11]. Most commonly used guideline to A high scale of anxiety would be activated an increase in gastric acid which, then decrease the deficiency factor in the form of barriers to Prostaglandin E which protects the gastric mucosa from the stomach acid. The cause of the increase in stomach acid made the students felt the symptoms of functional dyspepsia when he was feeling anxiety [7].

Diagnose and treat fungsional dyspepsia is Rome guidelines, Rome III being the latest. According to this, one or more of 4 cardinal symptoms (early satiation, postprandial fullness, epigastric pain and epigastric burning sensation) must be present for the last 3 months with symptom onset at least 6 months prior to diagnosis in absence of any organic, systemic or metabolic diseases. It is more common in women [6].Symptoms of functional dyspepsia are symptoms that arise one of them due to the presence of an external stressor, namely anxiety.[7] Anxiety can affect the autonomic nervous system. The autonomic nervous system, which is on the sympathetic nerve through adrenergic fibers, then secures norepinephrine to shift the immune system into the gastric mucosa to the Th2 response, which will increase mast cells and release nitric oxide. [16] Mast cells are chemical mediators in allergic reactions. Increased degranulation of mast cells as a reaction to the body's immunity will affect various organ systems in the body, one of which is digestion. The increase in release of mast cell granules will result in an increase in gastric fluid secretion and an increase in digestive peristalsis, so that it will lead to complaints such as diarrhea, nausea, vomiting which is one of the complaints in functional dyspepsia.[17]

Several studies have discussed increased visceral sensitivity as one of possible causes of dyspepsia symptoms. Although the cause of increased sensitivity is still unknown, the studies enumerated increased sensitivity following inflammation and gastrointestinal tract infection, impaired gastric accommodation, abnormal fundic phasic contractions, stress and associated psychological disorders, and changes in central sensory processing as some possible causes [13]. Remarkable coincidence and overlapping among somatoform disorders such as somatization and fibromyalgia with dyspepsia [12], emphasize some of abovementioned causes on increased visceral sensitivity among dyspeptic patients that are not related to the lining of the gastrointestinal tract such as stress, associated psychological disorders and changes in central sensory processing. This assumption is consistent with the results obtained by Vandenberghe*et al*. They proved that increased visceral sensitivity might have originated in an organ other than GI tract lining (gut) and it might have involved a multimodal pathway symptoms.[15]

CONCLUSION
This study showed that anxiety have a significant correlation to the incidence of functional dyspepsia when facing the OSOCA exam, students who have moderate scales of anxiety have 5 times greater than students who have a level of mild anxiety. As a result, students can not concentrate well in completing

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their exams. so that the results obtained were not good enough. Medical students can prepare the OSOCA exam well. Both in preparation of lecture material that must be mastered, physical, as well as good mental preparation in order to reduce the level of anxiety that affects the occurrence of functional dyspepsia symptoms. Research can be continued by adding more variables such as the result of the OSOCA test score and expanding the research sample so that it becomes an evaluation for students to better prepare themselves for the exam.And for institutions it is recommended to hold counseling for students who experience anxiety during exams so they can better prepare for the exam.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

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