

**THE RELATIONSHIP BETWEEN THE LEVEL OF ANXIETY AND THE
INCIDENCE OF DYSPEPSIA SYNDROME AMONG THE STUDENTS OF THE
FACULTY OF MEDICINE AT WIDYA MANDALA CATHOLIC UNIVERSITY
SURABAYA**

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ABSTRACT

Introduction: Students' anxiety results from multiple demands placed on them as medical students. Anxiety affects the body's functional systems, including the gastrointestinal system. Dyspepsia syndrome is one of the common symptoms.

Purpose: To determine whether there is a relationship between anxiety levels and dyspepsia syndrome among students at Widya Mandala Catholic University of Surabaya's Medical Faculty.

Method: This research is an observational analytic study with a cross-sectional research design. The subjects are obtained using purposive sampling methods from the forces of 2018, 2019, 2020, and 2021. This research uses HARS questionnaires to measure anxiety levels and Rome III criteria to measure dyspepsia syndrome. Statistical analysis is performed by using Pearson Chi-Square.

Result: Anxiety levels have a strong, substantial correlation with the incidence rate of dyspepsia syndrome ($p=0.000$). It is found that there are 4 out of 17 students (23.53%) with mild anxiety have dyspepsia syndrome, 44 out of 55 students (80%) with mild-moderate anxiety have dyspepsia syndrome, and 7 out of 8 students (87.5%) with moderate-severe anxiety have dyspepsia syndrome.

Conclusion: There is a significant relationship with a positive correlation, so it can be concluded that if the level of anxiety is higher, the greater the prevalence of dyspepsia syndrome.

Keyword: Anxiety, dyspepsia, medical students.

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INTRODUCTION

Being a medical student can not be separated from multiple demands that must be faced, starting with a practice of long life learning, the ability to manage time between studying and chilling, and mental and physical preparation to accept any exam that may be encountered¹. They cause students not to be separated from psychological disorders. Anxiety is also one of them. Anxiety is a common emotional reaction that affects people of all ages and genders².

Psychological factors can be one of the risk factors that cause disorders of the digestive tract. Dyspepsia is one of the common symptoms. Dyspepsia is an uncomfortable feeling in the epigastrium, with symptoms that can be felt, such as epigastric pain, epigastric burning, nausea, vomiting, bloating, burping, and postprandial fullness³. Many explanations state the cause of dyspepsia, including gastrointestinal dysmotility, autonomy dysfunction, changes in hormone levels, visceral hypersensitivity, *Helicobacter Pylori* infection, and psychological and cognitive factor⁴.

From the many risk factors that cause dyspepsia, we are interested in studying the relationship between anxiety levels experienced in the lead-up to the exam and the incidence of dyspepsia syndrome among the students at Widya Mandala Catholic University of Surabaya's Medical Faculty

METHOD

This research uses purposive sampling based on inclusion and exclusion criteria, determined by the number of 80 students as samples.

The inclusion criteria in this research are 1. Students at Widya Mandala Catholic University of Surabaya's Medical Faculty from the forces of 2018, 2019, 2020, and 2021. 2. They are willing to participate as respondents and complete a questionnaire.

The exclusion criteria in this research are 1. They have been diagnosed with

organic dyspepsia by a doctor. 2. They fulfilled the criteria of alarm symptoms, among others, gastrointestinal bleeding (including hematemesis or melena), anemia, dysphagia or odynophagia, unexplained weight loss (more than 10%), recurrent vomiting, family history of gastrointestinal cancer (gastric or esophageal cancer), and palpable abdominal mass.

The independent variable in the research is the level of anxiety obtained using the Hamilton Anxiety Rating Scale (HARS) questionnaire. Meanwhile, the dependent variable in this research is dyspepsia syndrome obtained using a functional dyspepsia questionnaire based on Rome III criteria. In this research, we did not do the anamnesis and physical examination directly because of the limitation of access to meet respondents due to the COVID-19 pandemic, so the data of this research are obtained using questionnaires.

RESULT

Respondents

Table 1 shows the characteristics of the students based on age and gender. In this research, most of the samples are aged 21 years (42,5%). Female students (66,25%) are more likely to participate in the research than male students (33,75%).

Table 1 Characteristics of medical students (N=80)

	n	%
Age		
17 years	2	2,5
18 years	12	15
19 years	12	15
20 years	19	23,75
21 years	34	42,5
22 years	3	3,75
Gender		
Male	27	33,75
Female	53	66,25

Anxiety Levels

Table 2 shows the characteristics and symptoms of anxiety that medical students most frequently experience. The most common anxiety symptoms experienced by medical students are somatic (sensory) symptoms, with 42 students (52.5%).

Table 2. Characteristics of anxiety levels.

Anxiety Symptoms	Anxiety Levels	n	%
Anxious mood	Moderate symptoms	31	38,75
Tension	Moderate symptoms	32	40
Fears	Mild symptoms	32	40
Insomnia	Moderate symptoms	33	41,25
Intellectual	Mild symptoms	29	36,25
Depressed mood	Moderate symptoms	34	42,5
Somatic (motoric)	Moderate symptoms	32	40
Somatic (sensoric)	Moderate symptoms	42	52,5
Cardiovascular symptoms	Moderate symptoms	31	38,75
Respiratory symptoms	Moderate symptoms	31	38,75
Gastrointestinal symptoms	Mild symptoms	30	37,5
Genitourinary symptoms	Mild symptoms	30	37,5

Autonomic symptoms	Mild symptoms	34	42,5
Behavior symptoms	Mild symptoms	39	48,75

Dyspepsia Syndrome

Table 3 shows the characteristics of dyspepsia syndrome that medical students most frequently experience. In this research, 55 (68,75%) out of 80 students have dyspepsia syndrome, and none of the students finds any structural abnormalities that become the criteria of functional dyspepsia. Postprandial fullness is the most common symptom among students, with 29 students (36,25%) reporting, and at least 18 students (22,5%) reporting epigastric burning.

Table 3. Characteristics of dyspepsia syndrome

	n	%
The duration of symptoms in the last three months		
Postprandial fullness	29	36,25
Early satiety	26	32,5
Epigastric pain	22	27,5
Epigastric burning	18	22,5
No structural abnormalities	55	68,75

Data Analysis

Table 4 shows 44 out of 80 students of the Faculty of Medicine with mild to moderate anxiety have dyspepsia syndrome. At the same time, 13 students with mild anxiety levels do not have dyspepsia syndrome.

Table 4. Data analysis

Variable	Anxiety Levels			Total
	Mild	Mild - Moderate	Moderate - Severe	
Have dyspepsia syndrome	4 (5%)	44 (55%)	7 (8,75%)	55 (68,75%)
Don't have dyspepsia syndrome	13 (16,25%)	11 (13,75%)	1 (1,25%)	25 (31,25%)
Total	17 (21,25%)	55 (68,75)	8 (10%)	80 (100%)

Based on data analysis with *Pearson Chi-Square* obtained a p-value of 0,000 ($p < 0,05$), it can be concluded that there is a relationship between anxiety levels and dyspepsia syndrome among the students at Widya Mandala Catholic University of Surabaya's Medical Faculty.

DISCUSSION

The result of this research is a significant relationship with a positive correlation, which shows that the higher anxiety, the greater the prevalence of dyspepsia syndrome among the students at Widya Mandala Catholic University of Surabaya's Medical Faculty.

Based on this research, that obtained in pre-clinic students on the eve of the exam experienced the mildest to moderate anxiety levels, while as many as 55 students (68.75%). Similar results were also found by Josephine Angelia et al. with research on students of the Faculty of Medicine of Tarumanagara University in 2014. There are 22 out of 44 students (50%) with mild to moderate anxiety levels⁵. The level of anxiety experienced by students is different from one to another, stressors can cause this, and the ability to adapt is also different. The risk factor for anxiety among medical students during the COVID-19 pandemic is unstructured learning, difficulty, and fatigue in receiving learning because of prolonged looking at electronic screens and missing the lesson⁶. When anxiety lasts for a long period, it can affect the body's

physiological functions, particularly in the gastrointestinal system. One of the common symptoms that can be experienced is dyspepsia syndrome.

The result of this research, there are 55 out of 80 students (68,75%) have dyspepsia syndrome. The result is also in line with Irvinia Rahmadyah's research, the doctor's education study student at Tanjungpura, the University of Medical Faculty from the forces 2013 and 2014. It is found that 95 out of 150 students (63,3%) have dyspepsia syndrome⁷. Meanwhile, Josephine Angelia's research, which investigated the severity of dyspepsia in students of the Faculty of Medicine of Tarumanagara University in 2014, found that 16 students (36,4%) have mild degree⁵. The interaction of psychological factors (anxiety) can affect gastrointestinal function through the gut-brain axis. This mechanism affects the endocrine pathway through the Hypothalamic – Pituitary Adrenal axis (HPA axis). The cerebral cortex activates the anterior hypothalamus, which induces *Corticotropin Releasing Hormone* (CRH), stimulates ACTH-secreting cells that release *Adrenocorticotrophic Hormone* (ACTH), and increases cortisol levels. Because high levels of cortisol increase gastric production, which inhibits Prostaglandin E and adenylyl cyclase enzyme as a gastric protection agent, symptoms of dyspepsia syndrome can result from a continuous increase in gastric production and inhibition of Prostaglandin E⁸.

Through vagus nervus, the parasympathetic system stimulates acetylcholine secretion by cholinergic fibers, gastrin, and histamine, causing dyspepsia syndrome owing to increased or reduced gastrointestinal motility, which has an impact on the time it takes to emptying⁹.

CONCLUSIONS

Based on the data analysis in this research, the relationship between the level of anxiety and the incidence of dyspepsia syndrome among the students of the Faculty of Medicine Widya Mandala Catholic

University Surabaya, it was found that there is a positive correlation between the level of anxiety with the incidence of dyspepsia syndrome.

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