

## Anxiety Level in Dyspeptic Patients at the Gastroenterohepatology Outpatient Clinic of Dr. Hasan Sadikin General Hospital Bandung, Indonesia

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### Abstract

**Background:** Dyspepsia is a disease with a high worldwide prevalence, including in Asia; however, the pathophysiology of the disease is still unclear. Recent studies suggest adapting a biopsychosocial model to understand the pathophysiology of dyspepsia that proposes the important role of anxiety. The aim of this study was to assess the anxiety level in dyspeptic patients who visited the Gastroenterohepatology Outpatient Clinic in Dr. Hasan Sadikin General Hospital Bandung.

**Methods:** A cross-sectional descriptive study using total sampling method was conducted from September–November 2012 to 19 patients aged 36–85 years old who consisted of 11 women and 8 men patients dyspepsia syndrome in the Gastroenterohepatology outpatient clinic Dr Hasan Sadikin General Hospital Bandung. The anxiety levels were measured using the Zung Self-Rating Anxiety Scale. All data were analyzed based on gender, age, and occupational status of the patients.

**Results:** Eleven of the nineteen patients had high anxiety levels. Women were more likely to experience high anxiety levels (8 of 11). The group with the highest number of patients with high anxiety was the 46–55 years old group, the high anxiety level was more common among patients who were government or private sector employees.

**Conclusion:** The anxiety level in dyspeptic patients who visited the Gastroenterohepatology outpatient clinic in Dr. Hasan Sadikin General Hospital Bandung was high.

**Key words:** Anxiety levels, Dyspeptic patients, Zung Self-Rating Anxiety Scale

### Introduction

Abdominal discomfort is a symptom that has a myriad of cause with one of the most common causes is dyspepsia. Dyspepsia refers to a disease that causes abdominal discomforts with postprandial fullness, early satiation, bloating, nausea, vomiting, and pain at the epigastric region.<sup>1</sup> A minority of dyspeptic patients suffer from organic causes while the majority has been found to suffer from non-organic dyspepsia or functional dyspepsia. Although dyspepsia has a worldwide prevalence, the pathophysiology is still unclear. Many research and studies have been performed and, recently, a biopsychosocial model is proposed alongside the brain-gut

axis (BGA) theory<sup>2</sup> to explain the multifactorial etiology of the disease because there is a high prevalence of psychological comorbidity seen in dyspeptic patients with anxiety as the comorbidity with the highest prevalence.<sup>3</sup>

Anxiety, which is defined as a condition of excessive worrying or anxiousness towards a few or more life events or problems for at least six months, has been known to have pathologic effects on the body, mediated by unclear mechanisms, where one of the effects is functional gastrointestinal disorders.<sup>4</sup>

The role of anxiety in functional dyspepsia has long been studied in Western population, and recent attention has been given to performing a study in Asian countries. In Indonesia, few have focused on this study despite the high prevalence in both Western

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and Asian populations. In addition, the current management for dyspepsia still focuses on the dysfunction of the stomach. Further research on this topic may reveal the significance of psychological aspect management in dyspeptic patients. To answer to this challenge, this study aimed to discover the anxiety level of dyspeptic patients visited the Gastroenterohepatology outpatient clinic of Dr. Hasan Sadikin General Hospital during the period of September to November 2012.

## Methods

A cross-sectional descriptive study was conducted from September– November 2012 to 19 patients who consisted of 11 women and 8 men patients dyspepsia syndrome in the Gastroenterohepatology outpatient clinic Dr Hasan Sadikin General Hospital Bandung who aged using total sampling method.

The age range of the patients was between 36–85 years old, which were divided into the following age group: 36–45 years (6/19 patients); 46–55 years (5/19 patients); 56–65 years (3/19 patients); 66–75 years (3/19 patients); 76–85 years (2/19 patients). Five different occupational categories were identified as follows: housewife (6/19 patients); retired (6/19 patients); government employee (4/19 patients); private sector employee (2/19 patients); others (1/19 patients).

The patients who had agreed to volunteerarily participate in the study filled the Zung Self-Rating Anxiety Scale to determine the anxiety level. All data gathered were analyzed to determine the percentage of high and low anxiety levels from the total population and to compare the anxiety levels based on gender, age, and occupational status of the patients.

## Results

The result showed that eleven of the nineteen patients had high anxiety levels ( Table 1).

**Table 1 Anxiety Levels of Dyspeptic Patients**

Anxiety Levels	n
Low	8
High	11
Total	19

The comparison of gender among those patients with high anxiety levels revealed that women were more likely to experience high anxiety levels (8 of 11) (Table 2).

**Table 2 Anxiety Level Based on Gender**

Gender	Anxiety Level		Total
	Low	High	
	n	n	n
Male	5	3	8
Female	3	8	11
Total	8	11	19

The group with the highest number of patients with high anxiety was the 46–55 years old group, followed by 36–45 years old age group with three patients, and 56–65 years old group and 66–75 years old group with two patients in each group. None of the patients in 76–85 years old. Group experienced high level of anxiety (Table 3).

**Table 3 Anxiety Level Based on Age Group**

Age (years)	Anxiety Level		Total
	Low	High	
	n	n	n
36–45	3	3	6
46–55	1	4	5
56–65	1	2	3
66–75	1	2	3
76–85	2	0	2
Total	8	11	19

In this study, most patients were housewives or retired, but based on the results shown in Table 4, the high anxiety level was more common among patients who were government or private sector employees. The patients who were housewives had an even distribution of low and high anxiety levels while most retired patients had low anxiety levels. Three out of four government employee patients and all private sector employee patients had high anxiety levels along with one patient whose occupation was categorized as 'others'.

**Table 3 Anxiety Level Based on Age Group**

Occupation	Anxiety Level		Total
	Low	High	
	N	n	n
Housewife	3	3	6
Retired	4	2	6
Government Employee	1	3	4
Private Sector Employee	0	2	2
Others	0	1	1
Total	8	11	19

## Discussion

Eleven out of nineteen dyspeptic patients in this study experienced a high level of anxiety (Table 1) which is in line with the results of previous studies that stated the high prevalence of anxiety in dyspeptic patients.<sup>3,5</sup> Anxiety affects the gastrointestinal functions through the emotional motoric system (EMS) that consists of hypothalamus, amygdala, and periaqueductal gray.

The emotional motoric system (EMS) is a part of the brain-gut axis theory, where it is thought to receive inputs from cortical structures involved in regulating or generating emotions and control motoric visceral functions.<sup>3,6</sup> The EMS structure has connections with the brain stem nuclei that control arousal (locus ceruleus) and with the autonomic nuclei (motoric vagal nuclei).

Locus ceruleus is crucial in anxiety due to its ascending noradrenergic projections and its role in regulating gastrointestinal responses through the connections with the autonomic nuclei where alterations in the autonomic output are seen in patients with anxiety, causing a low parasympathetic vagal tone. In addition to the activation of autonomic responses, the activation of the hypothalamus-pituitary-adrenal (HPA) axis that leads to corticotrophin-releasing hormones and cortisol productions might also partake in the alteration of the sensorimotor gastric function.<sup>6</sup>

A previous explanation has proposed a mediation of the mechanism between anxiety and functional dyspepsia.<sup>6,7</sup> Of the total eleven patients who had high anxiety levels, it was apparent that this condition was seen more in women than men (8 of 11). By referring to Table 2, although it is believed that there

is no great significance in the prevalence of dyspepsia based on gender<sup>1,5</sup>, other studies have shown that women have a high prevalence of functional gastrointestinal disorders which may have been attributed by the fact that women also have a high prevalence in visceral hypersensitivity and longer gastric emptying time<sup>8</sup>, both are implicated as the abnormalities of gastric motor function.<sup>6,7</sup>

Some studies also suggest the role of sex hormones in mediating visceral hypersensitivity, where women tend to experience visceral hypersensitivity as estrogen and progesterone reach their nadir before menstruation. This was based on observations of premenopausal female patients who experience gastrointestinal symptoms such as bloating or abdominal cramping during menstruation.<sup>8</sup> Psychological and environmental aspects are also indicated to have more effect on women. A history of sexual abuse and domestic abuse was reported in many women who have functional dyspepsia.<sup>5,8</sup>

There was a peak prevalence of high anxiety levels in dyspeptic patients of the age group of 46–55 years old (Table 3), which was also in line with previous studies observing age and dyspepsia. It was found that dyspepsia does not relate to any particular age group, but the prevalence of dyspepsia in the particular age group can show a trend. The trend or peak prevalence in this study showed a high prevalence of dyspeptic patients with high anxiety levels in the age group of 46–55 years old, which is also similar to a study in China<sup>9</sup>, where there is a peak prevalence of dyspepsia in age group of 41–50 years old. This trend may be attributed to more stress levels at this age group, low estrogen levels, and negative view on menopause.

From the results shown in Table 4, patients

who were governmental or private employees had higher anxiety levels compared to those with other occupations. This is possibly due to more stress triggered by the work load. Socioeconomic status has been shown to be a risk factor in functional dyspepsia patients.<sup>1,5,9</sup> Although more research needs to be done to observe socioeconomic status and its importance in functional dyspepsia, most studies have shown an association between the two factors. A study in China<sup>9</sup> showed that "dissatisfaction of income" is a risk factor in dyspeptic patients. Indeed, socioeconomic factors such as poor living condition, unemployment, low education, and low income have been shown in adults who were prevalent to dyspepsia.<sup>5</sup>

In conclusion, Although the small population, this study revealed high anxiety levels in dyspeptic patients at the Gastroenterohepatology outpatient clinic of Dr. Hasan Sadikin General Hospital. This result should be considered carefully due to inability to generalize the conclusion for wider population.

This study and previous related studies supports the application of the biopsychosocial model and the BGA axis theory that can be applied to further understand the mechanism behind dyspepsia, which is a disease with a heterogeneous etiology. To better understand the nature of this disease, further studies still need to be done to explore the relationship between biopsychosocial aspects and dyspepsia.

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