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# Gastritis and Mental Disorder: A literature Review

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**A B S T R A C T**

The most common digestive tract problem is gastritis, and it is increasing every year. Gastritis is pain that is not only caused by disorders of the abdominal organs but is also more often triggered by psychological stress factors. Gastric acid production will increase in stressful situations, for example, in a heavy workload, panic, and haste. Increased levels of gastric acid can irritate the gastric mucosa. Doctors today often diagnose gastritis as associated with an increased prevalence of panic attacks, social phobia, mood disorders, and major depression compared with those without gastritis. The purpose of this review is to determine the relationship between mental disorders such as anxiety, depression, and stress with the incidence of gastritis, from several studies, found that gastritis and mood and anxiety disorders are stronger among men than women. In the general population, a diagnosis of gastritis appears to be connected with a significantly elevated risk of mood and anxiety problems. Gastritis is caused by those prone to stress, as the more a person's susceptibility to stress, the greater the chance of gastritis. In contrast to animal studies, the link between gastritis and mood/anxiety was consistent across genders.

## 1. Introduction

Gastritis is generally dismissed as a minor ailment, but it can lead to severe consequences, and nearly all patients with gastritis recur. Gastritis is a painful condition caused by changes in the stomach organs, but it is more commonly brought on by psychological stressors, poor diet, alcohol, anti-inflammatory medicines, anxiety, and other reasons. Some people's gastrointestinal systems are affected by psychological or emotional issues such as stress and worry.[1]

According to the World Health Organization, gastritis affects 1.8 to 2.1 million individuals worldwide each year. In Southeast Asia, however, there are 583,635 cases of gastritis each year. With a population of 238,452,952 people and 274,396 cases of gastritis, Indonesia is a highly populated country. 40.8 percent of new gastritis cases were recorded in Indonesia (WHO 2014). Dyspepsia was the sixth most prevalent reason for hospitalization in 2011, according to the 2011 Indonesia Health Profile, accounting for 24.719 cases. Gastritis is quite common in Indonesia, with over 274 percent of the population suffering from it. Gastritis primarily affects women of reproductive age. It is caused by a busy lifestyle, a lack of attention to one's health, and stress brought on by the environment.[2]

Emotional disorders were found to be present in 6.0 percent of 37,728 Indonesians. Only a few individuals have complained of psychosomatic gastritis in the meantime. The Food and Drug Administration reported two cases of psychosomatic and gastritis in 2009 and 2010. The patients among the ages of 20 and 29.[2]

There has been ongoing interest in the relationship between gastrointestinal disorders and mood and anxiety disorders. Several clinical and epidemiologic studies have found significant relationships between mood and anxiety disorders and various common gastrointestinal disorders.[3]

There are various limitations to studies that have looked into the link between mental illnesses and gastritis. First, epidemiologic studies to date have relied exclusively on the self-report diagnosis of gastritis, which is subject to report bias. There has been a concern that those with depression/anxiety may be over-reporting physical health problems, including gastritis because it has been shown that depression/anxiety is associated with the perception of poorer health. Second, timeframes have been unclear when comparing mental disorders and gastritis. Specifically, it is not clear whether mental health problems and gastritis are associated only when they occur concurrently or at any point in the life course. Third, it also has not been clear whether the amount/level of psychopathology is related to the likelihood of gastritis. No previous study has examined the potential dose-response relationship between mental health problems and gastritis.[4]

A small number of clinical studies have documented elevated depressive symptoms among selected samples of patients with gastritis and high rates of mood and Anxiety disorder diagnoses among general gastroenterology outpatients.[5]

A clear understanding of the association between gastritis and psychological factors helps administer optimal treatment in subjects with gastritis because psychological factors can exacerbate gastritis, worsen treatment outcomes, and interfere with the quality of life.

**Gastritis and mental disorders on rats**

In the Journal of Experimental gastritis leads to anxiety- and depression-like behaviours in female but not male rats by Jia Luo et al. describe that pain-related and inflammatory GI diseases are linked to anxiety and depression symptoms. Psychological stressors like as experimentally induced depression- and anxiety-like phenotypes enhance the vulnerability to intestinal inflammation.[6]

The significant interaction among the factors treatment and gender on anxiety- and depression-like behaviours may indicate that iodoacetamide (IAA)-induced gastritis has a gender-related effect on psychological behaviours.[6]

The gender-related behavioural response with experimental gastritis is an expected finding. First, there is clinical evidence for gender-related comorbidity of functional dyspepsia with anxiety and depression. Secondly, IAA-induced gastritis in rats has previously been shown to elicit hypersensitivity with mechanical and chemical noxious stimulation in the stomach and has been presented to represent an experimental model of functional dyspepsia.[7–9]

The immunological, vagal nerve, and neuroendocrine pathways and the three possible pathways of the GI-brain axis could impact psychological behaviour. Gastritis caused a gender-related increase in anxiety and depression, which coincided with alterations in the three GI-to-brain routes. The IAA treatment did not affect plasma proinflammatory cytokine levels. In male rats, normal behaviour is in line with the lack of effect of IAA treatment on proinflammatory cytokines. However, the absence of the effect of IAA therapy on plasma levels of proinflammatory cytokines (IL-6, TNF-, and INF-) in female rats could indicate that the circulating immune route is not involved in the gender-related influence stomach inflammation on psychological behaviour. Another pathway for GI-to-brain communication is the vagus nerve. When the vagus nerve is active, information from the gastrointestinal tract is sent to the nucleus tract solitaries (NTS), Before reaching areas implicated in the stress response, such as the paraventricular nucleus of the hypothalamus, the vagus nerve's principal afferent terminal point. It has been shown that stimuli induce c-fos expression in neurons in the NTS and the PVN of the hypothalamus. Furthermore, evidence from investigations in vagotomy mice demonstrated that vagotomy reduced

stress-induced c-fos expression in PVN, implying that PVN neuronal activity can reflect vagus nerve activity. [6]

Furthermore, a substantial interaction in myeloperoxidase (MPO) activity between the factors treatment and gender could indicate a gender difference in sensitivity to IAA-induced gastritis. Although female control rats have greater MPO levels than male control rats, the IAA therapy significantly enhances MPO activity in both genders. It is possible that female rats are more susceptible to gastritis caused by IAA than male rats. This gender difference in IAA-induced gastritis sensitivity is consistent with clinical data showing women have a much higher prevalence of GI disorders than males. As a result, we believe that the gender-related effect of gastritis on anxiety and depression, as well as hypothalamic–pituitary–adrenal (HPA) axis activity, maybe due to female rats' greater sensitivity to gastritis than male rats.[10]

In summary, the IAA-induced gastric inflammation leads to anxiety- and depression-like behaviours in female but not male rats via the neuroendocrine pathway, suggesting GI inflammation has a gender-related impact on psychological behaviour and providing evidence for the existence of GI-to-brain signalling. This gender-related behavioural effect of gastric inflammation may be related to the different sensitivity to gastritis and the changes in sex hormones.[6]

**Gastritis and mental disorders on human**

Goodwin, Rini, and colleagues explained two crucial findings in the journal of psychiatric research, gastritis and mental disease. For starters, a diagnosis of gastritis appears to be linked to a much higher risk of mood and anxiety disorders in adults in general. The correlation is stronger when the two conditions coincide, but it is still significant even when not. Second, both girls and males have been found to link a diagnosis of gastritis and mood and anxiety issues. Males and females have a slightly stronger bond.[5]

**Demographic characteristics associated with gastritis**

The prevalence of gastritis was significantly higher among females than males and a marginal association between lower socioeconomic status and increased levels of gastritis. There was no statistically significant relationship between gastritis and age. Gastritis was associated with a significantly increased likelihood of any anxiety disorder, panic attacks, social phobia, mood disorder, and major depression in the past 12-months when compared to those without gastritis. These associations remained significant after adjusting for differences in demographic characteristics and regardless of the timeframe of measurement for gastritis.[5]

**Gastritis and mental disorders among females**

Results indicated a statistically significant relationship between current (before 12 months) and remitted (past 12 months) gastritis and any anxiety, mood, major depression, panic attacks, and social phobia in the past 12 months compared to those without lifetime gastritis. After accounting for age and socioeconomic position, the relationships remained statistically significant.[5]

**Gastritis and mental disorders among males**

Current (past 12 months) and remitted (before past 12 months) gastritis was associated with a significantly increased likelihood of anxiety, social phobia, panic attacks, and mood disorders in the past 12 months. In comparison to females, males had more significant correlations between gastritis and mood and anxiety disorder.[5]

A relationship between emotional or psychological stress and gastrointestinal disease has been recognized and raises important questions regarding potential links between the brain and the gastrointestinal (GI) tract. The finding that the brain controls certain physiologic functions of the GI tract is not new and has been accepted since Pavlov conducted his classic experiments on canine salivation and gastric acid secretion in the late 19th

century.[5] Chemically, the neurotransmitters active in the brain are also known to be active in the GI tract. For example, serotonin, a neurotransmitter implicated in many psychiatric disorders, is also known to be an essential factor in certain GI disorders such as irritable bowel syndrome.[11]

## 2. Discussion

Numerous previous studies have documented higher rates of psychiatric disorders among individuals with gastrointestinal disorders. Based on many journals, a diagnosis of gastritis appears to be associated with increased odds of mood and anxiety disorders. Two dominant possibilities exist. First, there could be a causal relationship between the two. It is conceivable that the discomfort, pain, and functional limitations associated with gastritis e depending on severity - could lead to increased feelings of anxiety or depression, perhaps among vulnerable people. It is also possible that anxiety at extremely high levels, which is characteristic of anxiety disorders, could lead to gastritis via a neural pathway leading to irritation/inflammation of the stomach lining. Second, there could be a common genetic or environmental risk factor for both gastritis and depression/anxiety.[3,5]

For instance, there might be common genetic variants predisposing an individual to be gastrointestinal and affective disturbances. Regardless of the exact mechanism, a relationship between emotional or psychological stress and gastrointestinal disease has been recognized and raises important questions regarding potential links between the brain and the gastrointestinal (GI) tract. The finding that the brain controls certain physiologic functions of the GI tract is not new and has been accepted since Pavlov conducted his classic experiments on canine salivation and gastric acid secretion in the late 19th century. Chemically, the neurotransmitters active in the brain are also known to be active in the GI tract. For example, serotonin, a neurotransmitter implicated in many psychiatric disorders, is also known to be an essential factor in certain GI disorders such as irritable bowel syndrome.[5]

The innervation of the GI tract can be traced back to the brain anatomically, with the vagus nerve being the most obvious example. The oesophagus, stomach, small intestine, liver, and pancreas are innervated by the vagus nerve, which runs from the brainstem to the GI tract. Based on Pavlov and others finding, and since the brain and the GI tract are so clearly connected chemically and anatomically, the presence of a functional "BraineGut Axis" has been proposed. While much of the impact of the BraineGut Axis on normal function is understood, the impact of this relationship on pathologic processes is the subject of current research. Although the findings of the current report, unfortunately, cannot shed additional light on the mechanisms that underlie the BraineGut Axis, the presence of such an Axis, however, provides a very plausible mechanism by which our findings can occur. Alternatively, it could be that exposure to a chronic stressor, such as financial insecurity/poverty, community violence, and standard housing conditions, could potentially lead to the development of both gastritis and mood/ anxiety disorders.[5]

## 3. Conclusion

Gastritis is pain that is not only caused by disorders of the abdominal organs but is more often triggered by psychological stress factors such as stress and anxiety. The relationship between gastritis and psychological factors helps provide optimal treatment for subjects with gastritis because psychological factors can worsen gastritis, worsen treatment outcomes, and interfere with the quality of life. In the first instance, a psychosomatic diagnosis of gastritis should be established, and psychological issues should be treated with somatic abnormalities. As a result, the primary level of health care must provide a comprehensive range of physical, psychological, and social services.

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