

COMPARISON OF MENTAL HEALTH IN PEOPLE WITH AND WITHOUT PEPTIC ULCER DISEASE

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ABSTRACT

Introduction: In many studies, connection between psychological factors and peptic ulcer disease considered but isn't consensus about this issue. This study was carried out aimed to compare the mental health in people with and without peptic ulcer disease (PUD) considering gender differences. **Material and methods:** This study was a case-control study. Case group included 30 patients with peptic ulcer disease (PUD). The disease of the members of this group was confirmed by endoscopy and by a gastroenterologist. The control group included 30 people without peptic ulcer disease (PUD), who was selected from among the companions of the patients referred for endoscopy, and they had no PUD or other known digestive diseases. Data collection tool in this study was SCL-90 questionnaire and demographic questionnaire. Finally, the data was analyzed. **Results:** Some common psychological problems in these patients included psychosomatic, depression, sensitivity in reciprocal relations, obsession and compulsion, aggression, and anxiety. significant relationship was observed between these 6 dimensions and PUD. There was no significant relationship between PUD and paranoid thoughts, phobia and psychosis. Psychological problems in women were significantly more than men with PUD. In 60% of people with PUD, PUD was diagnosed at least one of the first-degree relatives. In 40% of people with PUD, at least one of the first-degree relatives was suffering from gastrointestinal malignancies. **Conclusion:** According the results of this study, high prevalence of psychological problems in people with PUD makes necessary paying attention to these problems and doing psychological interventions, if necessary.

KEYWORDS: Peptic ulcer disease, mental health, SCL-90 questionnaire.

INTRODUCTION

Peptic Ulcer Disease is defined as the breakdown of mucosal integrity of gastric mucosal integrity or duodenum leading to localized defect or cavity due to active inflammation. Duodenal ulcers and gastric ulcers have many common characteristics for pathogenesis, diagnosis and treatment, but several factors distinguish them from each other.^[1] Peptic ulcer disease is the fourth most common gastrointestinal disease in the United States.^[2] A study conducted in Iran between 2002 and 2012 estimated the prevalence of gastric ulcer in Iran at 41%.^[3]

Early studies on peptic ulcer disease showed the psychological factors in the vulnerability to peptic ulcers. These studies indicated that the increased levels of gastric acid secretion are associated with psychological stress. A study that was conducted on prisoners during the Second World War revealed a 2-fold prevalence of

peptic ulcer in prisoners relative to the control group. Stressful life events may reduce the immune response and, as a result, more vulnerability to H.pylori bacteria. There is currently no consensus on the association of peptic ulcer with specific psychological problems.^[4]

Many studies showed that psychological factors are likely to play an important role in peptic ulcer disease etiology.^[5] Peptic ulcer is usually associated with mental illnesses such as stress and depression which does not respond to drug therapy and is likely to recur.^[6] This study, considering the above issues and the high prevalence of peptic ulcer in the world and Iran, as well as the financial and economic costs that annually impose on the community and especially the health sector, investigated the mental health in patients with peptic ulcer to examine the patients in case of the possible relationship between psychological problems and peptic

ulcers and present suggestions for therapeutic and psychological interventions.

METHODOLOGY

The present study was a cross-sectional and epidemiologic analytical research of case-control type. The research area was the internal and endoscopic wards of Imam Khomeini and Golestan educational hospitals in Ahvaz. The sample size of the study was estimated to be 17 in each group by using the NCSS software and the information in the same article^[7] by considering 10% loss in each group. In addition, there was $\alpha = 0.05$ was and the exponent was considered as 80%.

$$\bar{X}_1=94.4 \quad \bar{X}_2 = 50.3 \quad S_1 = 49.9 \quad S_2 =30.1$$

It should be noted that the sample size was considered to be 30 for the case and control groups in order to increase the statistical power of the test. Then, for the case group, 30 patients referring to the endoscopy ward of Golestan and Imam Khomeini Hospitals of Ahvaz, who were diagnosed with their peptic ulcer, were selected according to the inclusion criteria. The control group included 30 people without peptic ulcer disease (PUD), who was selected from among the companions of the patients referred for endoscopy, and they had no PUD or other known digestive diseases. The inclusion criteria included the age of 18 years old (in two groups), the diagnosis of peptic ulcer by the endoscopic specialist of the endoscopy (case group), the lack of referral to the

psychiatrist, according to the subjects (in the case and control groups), the absence of known gastrointestinal disease and peptic ulcer, according to the subjects (control group), the lack of mental retardation or cognitive problems such as Alzheimer (in case and control groups). These subjects (n=60) entered the study with informed consent. Data collection tool was Symptom Check List_90_Revised questionnaire including 90 questions for the assessment of psychological symptoms, which can be used to distinguish healthy subjects from the patients.^[8] This tool represented the mental health of individuals through the assessment of 9 different dimensions including psychosomatic, obsession and compulsion, hypersensitivity, depression, anxiety, aggression, phobia, paranoid and psychosis. The internal validity of this questionnaire was confirmed in previous studies with satisfactory alpha coefficient.^[8] In this study, a demographic questionnaire was used to collect demographic information of the participating units. The questionnaire was completed by the subjects in the clinic and in a relaxed environment. Finally, SPSS 22 software was used to analyze the data.

Findings

The descriptive findings of this study including statistical indicators such as mean and standard deviation for the studied variables in this study were presented in Table 1.

Table 1: Psychological problems in subjects with and without peptic ulcer disease in terms of gender.

Number	Standard deviation	mean	Statistical indicators		variable
			Subjects		
14	120.34	342.64	Female	Subjects without peptic ulcer disease	Psychological problems
16	125.04	218.94	Male		
30	136.09	276.67	Total		
12	82.15	388.75	Female	Subjects with peptic ulcer disease	
18	127.30	288.56	Male		
30	120.63	328.63	Total		

Regarding the psychological problems in subjects with peptic ulcer disease by gender, according to the information presented in Table 1, mean and standard deviation for females with peptic ulcer disease were 388.75 and 82.15% and in males with peptic ulcer disease were 288.56 and 127.30% suggesting that psychological problems are more common in females with peptic ulcer than in males.

The Kolmogorov-Smirnov test was used to normalize the data distribution. Considering that the significance level (P-value) of the Kolmogorov-Smirnov test for all dimensions was greater than the significance level of 0.05 and by comparing the P-value of this test to the significance level of the test (in this research) that was equal to 0.05, the normal distribution of data for the dimensions of the research variable was accepted.

In Table 2, the frequency of psychological problems in subjects with and without peptic ulcer disease was mentioned in terms of gender.

Table 2: Frequency of psychological problems in the studied samples in terms of gender.

cumulative percentage	percent	frequency	Statistical indicators		variable
			subjects		
7.1	7.1	1	very low	Female	Subjects without peptic ulcer disease
28.6	21.4	3	low		
71.4	42.9	6	high		
100	28.6	4	very high		
37.5	37.5	6	very low	male	
75	37.5	6	low		
81.2	6.2	1	high		
100	18.8	3	very high		
8.3	8.3	1	very low	Female	Subjects with peptic ulcer disease
-	-	-	low		
91.7	83.3	10	high		
100	8.3	1	very high		
33.3	33.3	6	very low	male	
50	16.7	3	low		
94.4	44.4	8	high		
100	5.6	1	very high		

Based on Table 2, in subjects without peptic ulcer disease, psychological problems in the female were 42.9% at the high level and 28.6% at the very high level. In addition, psychological problems in the males without peptic ulcer disease were 6.2% at the high level and 18.8% at the very high level.

In the females with peptic ulcer disease, psychological problems were 83.3% at the high level and 8.3% at the

very high level. In the males with peptic ulcer disease, psychological problems were 44.4% at the high level and 5.6% at the very high level (Table 2).

One-sample t-test was used to investigate the differences in psychological problems in the subjects with and without peptic ulcer. That information was listed in Table 3.

Table 3: Differences in psychological problems in subjects with and without peptic ulcer.

Test standard = 270			
significance level	T statistics	mean value	studied groups
0.790	0.268	276.67	subjects without peptic ulcer
0.013	2.662	328.63	subjects with peptic ulcer

Based on Table 3, single-sample t test showed that the frequency of psychological problems in subjects with and without peptic ulcer is different and is more in the subjects with peptic ulcer than those without peptic ulcer.

One-sample t-test was used to compare the dimensions of psychological problems in subjects with and without peptic ulcer. The information was listed in Table 4.

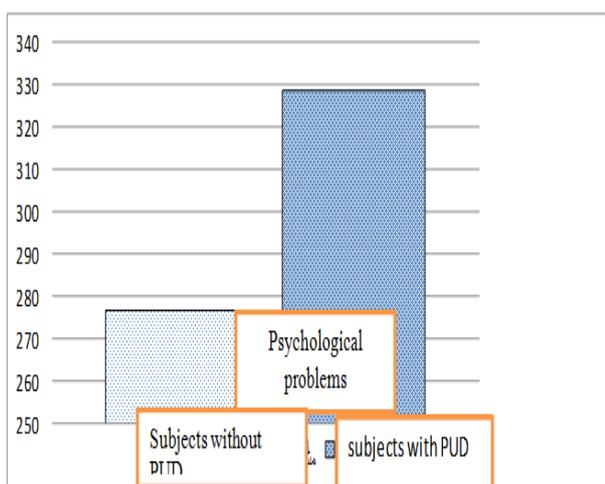


Figure 1. Differences in psychological problems in subjects with and without peptic ulcer.

Table 4. Comparison of the dimensions of psychological problems in subjects with and without peptic ulcer.

test standard=30				dimensions
significance level	T statistics	mean value	studied groups	
0.961	- 0.050	29.86	subjects without peptic ulcer	psychosomatic
0.021	2.435	36.10	subjects with peptic ulcer	
0.680	0.417	31.13	subjects without peptic ulcer	Obsession and compulsion
0.020	2.454	36.13	subjects with peptic ulcer	
0.853	0.187	30.53	subjects without peptic ulcer	Sensitivity to interactions
0.009	2.810	36.66	subjects with peptic ulcer	
0.896	0.132	30.36	subjects without peptic ulcer	Depression
0.017	2.525	36.13	subjects with peptic ulcer	
0.774	0.290	30.83	subjects without peptic ulcer	anxiety
0.011	2.720	36.63	subjects with peptic ulcer	
0.482	0.712	31.90	subjects without peptic ulcer	aggression
0.019	2.481	36.06	subjects with peptic ulcer	
0.020	2.457	36.10	subjects without peptic ulcer	phobia
0.227	1.233	33.26	subjects with peptic ulcer	
0.489	0.700	32.13	subjects without peptic ulcer	Paranoid thoughts
0.177	1.383	33.73	subjects with peptic ulcer	
0.179	1.373	33.70	subjects without peptic ulcer	Psychosis
0.154	1.463	34	subjects with peptic ulcer	

According to Table 4, there was significant difference in six dimensions including psychosomatic, obsession and compulsion, sensitivity to interactions, depression, anxiety and aggression between the subjects with peptic ulcer and the subjects without peptic ulcer. Furthermore, these 6 dimensions in peptic ulcer patients were significantly higher than that of the non-peptic ulcer group.

The frequency of psychological problems in two dimensions of paranoid thoughts and psychosis was not significantly different between the two groups of subjects with and without peptic ulcer.

Psychological problems in the field of phobia were significantly different between the two groups. In other words, the frequency of psychological problems in the field of phobia in patients without peptic ulcer was more than peptic ulcer patients.

Table 5 listed the data related to the frequency of gastrointestinal malignancies and peptic ulcer disease in first-degree relatives in subjects with and without peptic ulcers.

Table 5: Frequency distribution of subjects with gastrointestinal malignancies and peptic ulcer in first-degree relatives in subjects with and without peptic ulcer.

the studied units				Gastrointestinal problems in first-degree relatives
subjects with peptic ulcer		subjects without peptic ulcer		
percent	frequency	percent	Frequency	
%40	12	%20	6	Gastrointestinal malignancies
%60	18	%27	8	Peptic ulcer disease

Regarding the above information, the frequency of gastrointestinal malignancies and peptic ulcer in first-degree relatives of subjects with/without peptic ulcer was significantly different, suggesting a higher incidence of gastrointestinal malignancies and peptic ulcers in the first-degree relatives of subjects with peptic ulcer compared with subjects without peptic ulcer.

DISCUSSION

The present study aimed at investigating the mental health of subjects with/without peptic ulcer and showed that in general the frequency of psychological in subjects with peptic ulcer problems was significantly higher than subjects without peptic ulcer.

In this study, psychological problems were studied in 9 dimensions in details. There was a significant difference in 6 dimensions including psychosomatic, obsession and compulsion, sensitivity to interactions, depression, anxiety and aggression among the subjects with peptic ulcers and those without peptic ulcers. In addition, the frequency of these 6 dimensions in peptic ulcer patients was significantly higher than that of the non-peptic ulcer group.

The frequency of psychological problems in two dimensions of paranoid thoughts and psychosis was not significantly different between the two groups of patients with and without peptic ulcer. In other words, psychological problems in paranoid thoughts and

psychosis were evaluated as irrelevant to peptic ulcer disease. Psychological problems in the field of phobia were significantly different between the two groups. In other words, the frequency of psychological problems in the field of phobia in subjects without peptic ulcer was higher than subjects with peptic ulcer.

In a study conducted in Iran in 2013, Beck Depression Inventory and general health questionnaire were used in subjects with peptic ulcer and showed that in most studied patients there were psychological problems throughout life, and mild to moderate depression was observed in many of them.^[9]

In a study conducted in Iran in 2012 using the Quality of Life questionnaire of the World Health Organization, the results showed a significant difference between the overall scores of quality of life in patients with peptic ulcer and normal people. In addition, among the subscales of this questionnaire, physical health, mental health, and level of independence were significantly different between the two groups.^[10]

In a study conducted in Iran in 2011 using the MCMI II questionnaire, it was shown that the level of depression and anxiety in peptic ulcer patients was significantly higher than normal group.^[11]

In a study conducted in the United States in 2002 on the adults with peptic ulcer, the researchers found that there was a dose-response relationship between generalized anxiety disorder and peptic ulcer disease.^[12]

In a study conducted in Singapore in 2014 using EuroQol-5D on people with peptic ulcer, it was shown that peptic ulcer is associated with anxiety disorders, and this association cannot be ignored despite the cigarette or alcohol addiction simultaneously with peptic ulcer.^[13]

Another study conducted in 2004 in the United States showed that psychosocial factors are associated with functional gastrointestinal diseases. In this case-control study that was conducted by the SCL 90 questionnaire, all nine dimensions of psychological problems, except phobia, were significantly higher in subjects with peptic ulcer than in the control group. The study found that stresses and negative events of life were more in subjects with peptic ulcer^[14], which was consistent with the present study.

A study conducted by Behroozian *et al.* in 2012 aimed at comparing the psychological problems in patients with dyspeptic complaints with and without pathologic findings and used the SCL90 questionnaire to collect data. In this study, there was a significant relationship between functional dyspepsia and psychological problems in 9 dimensions of the SCL90 questionnaire except for psychotic disorders. The only psychiatric disorder associated with dyspepsia was reported to be psychotic disorder, which was in line with this study.^[15]

A study conducted in Iran in 2013 in three groups of 30 people with peptic ulcer and functional Dyspepsia and control group used the SCL-90, ROCI-II and TAS-20 questionnaires. It was shown that psychological symptoms in patients with peptic ulcer and functional Dyspepsia were more than the control group^[7], which was consistent with the present study. In this study, using the SCL-90 questionnaire, there was a significant difference in all nine dimensions of this questionnaire between the group with peptic ulcer and the control group while the psychological problems in all nine dimensions in patients with peptic ulcer were more than that of the control group.^[7] Meanwhile, in the present study there was no significant difference in paranoid thoughts and psychosis between the subjects with and without peptic ulcer. In the present study, the control group included the patient attendants of those referring to endoscopy who were not suffering from peptic ulcer disease and other known gastrointestinal diseases as self-reported. The high prevalence of phobia in these patients may be due to concerns about the possibility of severe disease, malignancy and gastrointestinal bleeding in the person accompanied by his attendant for endoscopy as well as stress and worry about the future of the patient, a feeling of guilt about the necessary care for the endoscopic person and the concern about dealing with future care and economic problems in the future.

In the present study, the frequency of subjects with peptic ulcer and gastrointestinal malignancies in the first-degree relatives of patients with peptic ulcer disease was significantly higher than those without peptic ulcer disease. In this regard, it can be argued that this outcome may be due to the relative dependence and family proximity, and possibly the environment and the existence of similar stresses, as well as family patterns and family-like coping mechanisms against stress. It should be noted that since *H pylori* bacteria is one of the main causes of peptic ulcer, humans are an important reservoir for *H pylori* bacteria and family is considered as one of the main sources of infection transmission. The prevalence of this infection is higher in populated families. The transmission ways from one person to another through the mouth-mouth, mouth- stomach, or feces-mouth are the most important means of transmitting the infection.

In a study by Christodoulou *et al.*, more than 50 percent of the first-degree relatives of people with peptic ulcer had peptic ulcer disease^[16], which were consistent with the results of this study.

In this study, the frequency of psychological problems in females with peptic ulcer was more than the males with peptic ulcer disease. In a study conducted in 2017 with the aim of examining gender differences in general health, smoking and alcohol use, and chronic diseases in China, it was shown that the prevalence of psychological problems and chronic diseases in females was more than

males.^[17] These results were consistent with the results of this study.

A study by Francesco Tandoi *et al.* in Italy in 2012 aimed at examining gender differences to show that both genders affected by PUD, but gastric ulcers are more common in females while males suffer more from duodenal ulcers. Before the twentieth century, the disease was more prevalent in males but now it is equal among males and females. The rate of this disease decreased among young males and is rising in older females and one of its main causes is an increase in the prevalence of smoking among the females of high age. In addition, the increased use of NSAIDs by females may play a role in this phenomenon. Finally, the changes in lifestyle and the increase in the number of employed females increase the stress among them which is also an important factor in the spread of pathology.^[18] It should be noted that regardless of nationality and race, the prevalence of depression in females is higher than that of males. Some hypotheses were raised as the reason including the hormonal differences between males and females, the effects of maternal role, differences in psychological stressors among males and females and the learned behavioral models.^[4] The prevalence of anxiety is noticeably higher in females than males and is higher in people with a higher socioeconomic status.^[4]

By considering the results of the present study, the experts can be sensitive to psychosocial changes in people susceptible to gastrointestinal diseases. In addition, they can always consider the psychological problems as important risk factors along with other risk factors for the development of peptic ulcer disease by taking preventive measures. The present study showed that due to the high prevalence of psychological problems in people with peptic ulcer, these problems must be considered and, if necessary, psychological interventions are needed.

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