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Comparison of Psychological Disorders between Patients with and without Covid-19; A Case Study of Yasuj City, Iran

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ABSTRACT

Aims The emergence and rapid spread of the Covid-19 disease not only caused public health concerns, but also caused a number of psychological disorders. The present study was conducted to compare psychological disorders between patients with and without Covid-19 in Yasuj city, Iran.

Instruments & Methods This descriptive-comparative study was conducted in Yasuj city in 2021. 480 participants including 240 participants with Covid-19 and 240 participants without Covid-19 were selected by purposive sampling method through websites and virtual channels. Nine psychological symptoms including depression, anger-hostility, somatization, anxiety, psychoticism, interpersonal sensibility, paranoid ideation, obsessive-compulsive, and phobia were evaluated using the Symptom Checklist-90-Revised. Data were analyzed in SPSS 24 software using chi-square test and independent t-test.

Findings Psychological symptoms, including depression, anger-hostility, somatization, anxiety, psychoticism, interpersonal sensibility, paranoid ideation, obsessive-compulsive, and phobia were significantly higher in the Covid-19 group than in the healthy group ($p<0.001$). In Covid-19 group, the incidence of psychological symptoms was significantly higher in men compared to women and in single patients compared to married patients ($p<0.001$).

Conclusion The frequency and chance of having psychological disorders in patients with Covid-19 is higher compared to healthy people.

Keywords Covid-19; Patients; Mental Disorders

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Introduction

In 2019, a new virus from the Coronaviridae virus family caused a respiratory infection in China, which quickly spread throughout the world and put the most countries in crisis; The World Health Organization (WHO) called this disease Covid-19 [1]. In addition, the appearance of the Covid-19 virus disease changed people's living conditions and just like the outbreak of the SARS (Severe Acute Respiratory Syndrome) in 2003 and Ebola in 2014, depression, anxiety, stress and anger caused by anxiety spread among people [2, 3]. Even in people who are mentally healthy, the pandemic can create anxious thoughts and obsessive behaviors and increase negative emotions (such as anxiety, depression and anger) in people, while positive emotions (such as happiness and life satisfaction) decrease [4]. Researchers have found inflammatory changes in the cerebrospinal fluid of Covid-19 patients [5], so psychiatric symptoms may be due to the effect of the viral infection on the central nervous system [6]. Fear of death, worry about infection of family members, despair, anger and insomnia are stress reactions [7]. Antiviral treatment may cause psychiatric symptoms in patients. For example, there is evidence that steroids can induce psychotic episodes [8].

At the height of the spread of Covid-19, people experienced intense negative emotions due to the quarantine. A long period of quarantine, separation from loved ones, loss of freedom, uncertainty about the state of illness, boredom, fear of illness, mental fatigue, insufficient information and financial loss are some of the causes of quarantine stress, and quarantine is often an unpleasant experience. Although quarantine is necessary in infectious and pandemic conditions, it is often accompanied by a negative psychological effect that leads to the emergence of mental disorders, depression, anger and anxiety, which can appear months or years later [9].

Long-term negative emotions reduce people's immune function and can destroy the balance of their normal physiological mechanisms. When people feel the danger of illness, they behave in a conservative and cautious manner [3]; these behaviors can prevent disease control [2, 3].

People's reactions in dangerous and threatening situations are different, and the intensity of these reactions depends on a person's understanding of situations and incidents and to what extent he/she identifies a situation as threatening [10]. There is evidence that people suffering from severe anxiety disorders show high levels of specific phobia and are more vulnerable than other people [10-13]. Also, serious concerns such as fear of death can be created among patients, and feelings of loneliness and anger can spread among the general public [14]. People with high anxiety tend to misinterpret good physical sensations and changes. These people may mistakenly interpret benign pains as a sign of a disease and refer to the treatment staff with the smallest symptoms and put an additional burden on the treatment staff, which can have negative consequences for the individual and society [15].

Shanbezadeh *et al*. mentioned anxiety (6.5-63%), depression (4-31%), post-traumatic stress disorder (12.1-46.9%) and fatigue (28-87%) as the most common mental and neurological problems in the Covid-19 pandemic [16]. Yang *et al*. showed in a study that patients with Covid-19 in the isolation ward have different degrees of anxiety, depression and sleep problems and need therapeutic intervention [17]. In Hambisa *et al*.'s study, the prevalence of psychological diseases was 57.9% [18]. In early 2020, Liu *et al*. noted the occurrence of a number of psychological disorders, including anxiety (44.7%), fear, depression (50.7%), emotional changes, insomnia (36.1%), and post-traumatic stress disorder (73.4%) with a high prevalence in these patients [19]. Robertson *et al*. reported in 2004 that post-traumatic stress symptoms were about four times higher in quarantined children than non-quarantined children [20].

Although studies on mental disorders such as depression, anxiety and stress during the Covid-19 pandemic have been conducted in the world and in Iran and have shown different results, a study comparing nine psychiatric disorders including depression, anger, somatization, interpersonal sensitivity, paranoid ideation, obsessive compulsive, anxiety, phobia, and psychoticism between patients with Covid-19 and people without Covid-19 was not found. In addition, these psychiatric disorders can be different in the geographical environment, culture and customs of the society. Therefore, this study was conducted to compare psychological disorders between patients with and without Covid-19 in Yasuj city, Iran.

Instruments and Methods

In this descriptive-comparative study, psychological disorders were compared between two groups of patients with and without Covid-19 in 2021 in Yasuj city, Iran. In order to determine the sample size, Haiyan *et al*.'s study was used [21] and considering the $\sigma=2.07$, $\alpha=0.05$, and $E=0.2$, the minimum sample size was calculated to be 200 people, and taking into account a 20% attrition rate, the sample size was determined to be 240 people in each group. Due to the special conditions of the society and the limitations of social communication due to the prevention of the spread of the Covid-19 virus, a purpose-based sampling method and the implementation of an internet questionnaire were used. Inclusion criteria were at least 18 years of age, and for the group with corona, a history of at least 1 hospitalization due to Covid-19 disease. Exclusion

criteria were a history of neurological and psychiatric disorders or hospitalization in neuro-psychiatric wards. The sampling method was such that at first 10 popular channels, groups and websites of Yasuj city were randomly selected and questionnaires designed online were made available to the members. Sampling continued until 240 people were included in each group. People who filled out the questionnaire incompletely were removed from the study and replaced [22].

Data were collected using demographic information form and Symptom Checklist-90-Revised (SCL-90-R). SCL-90-R contains 90 questions and evaluates 9 categories of psychological symptoms including depression (13 questions), anger-hostility (6 questions), somatization (12 questions), anxiety (10 questions), psychoticism (10 questions), interpersonal sensibility (9 questions), paranoid ideation (6 questions), obsessive-compulsive (10 questions), and phobia (7 questions). 7 scattered questions are also designed to prevent the subject from knowing about the nature of the test. The subject's answer is scored based on a five-point Likert scale. Each item is scored on a scale from 0 to 4 based on how much an individual was bothered by each item in the last week: 0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, 4 = extremely. The initial form of this questionnaire was designed by Derogatis, Lipman and Covi in 1973 to show the psychological aspects of physical and mental patients. In 1984, Derogatis *et al*. revised the questionnaire and published its final form. The reliability and validity of this questionnaire in Iran has been reported as more than 0.90 [23]. In the present study, Cronbach's alpha coefficient was calculated for this questionnaire at 0.96.

After coding, the data were entered into SPSS 24 software and analyzed using chi-square test and independent t-test.

Findings

In this study, 480 people were compared in two groups of people with Covid-19 (n=240) and healthy people (n=240). The mean age of Covid-19 group was 36.73±14.40 years and the mean age of Healthy group was 34.17±13.83 years. There was a significant difference between the two groups in terms of mean age (p=0.037). Also, in the group with Covid-19, the history of death in the family due to corona was more (p<0.001). However, regarding other demographic characteristics, no significant difference was observed between the two groups (p>0.05; Table 1).

Among the patients with Covid-19, 56 people (23.3%) had a history of hospitalization due to Covid-19, which the length of hospitalization in 22 people (39.3%) was less than one week, in 20 people (35.7%) one to two weeks and in 14 people (25.0%) was more than two weeks. 12 patients (21.4%) were admitted to the Intensive Care Unit (ICU) and 44 patients (78.5%) were admitted to other wards.

Table1) Comparing the frequency distribution of demographic characteristics between the Covid-19 group (n=240) and the healthy group (n=240)

Demographic variables	Healthy group	Covid-19 group	P-value
Gender			
Male	144 (60.0)	142 (59.2)	0.852
female	96 (40.0)	98 (40.8)	
Marital status			
Single	125 (52.1)	106 (44.2)	0.083
Married	115 (47.9)	134 (55.8)	
Educational level			
Diploma and below	81 (33.8)	83 (34.6)	0201
Associated degree	20 (8.3)	34 (14.2)	
Bachelor's degree	94 (39.2)	83 (34.6)	
Master's degree and higher	45 (18.8)	40 (16.7)	
Place of residence			
Town	223 (92.9)	224 (93.3)	0.857
Village	17 (7.1)	16 (6.7)	
Type of insurance			
Social security insurance	83 (34.6)	83 (34.6)	0.982
Health insurance	104 (43.3)	101 (42.1)	
Rural	17 (7.1)	16 (6.7)	
Other insurance	34 (14.2)	37 (15.4)	
No insurance	2 (0.8)	3 (1.3)	
Dead in family	6 (2.5)	26(10.8)	<0.001

Psychological symptoms, including depression, anger-hostility, somatization, anxiety, psychoticism, interpersonal sensibility, paranoid ideation, obsessive-compulsive, and phobia were significantly higher in the Covid-19 group than in the healthy group (p<0.001; Table 2).

Table 2) Comparing the frequency distribution of psychological symptoms between the Covid-19 group (n=240) and the healthy group (n=240)

SCL-90-R items	Healthy group	Covid-19 group
Depression	84 (35.0)	139 (57.9)
Anger-hostility	52 (21.7)	83 (34.6)
Somatization	57 (23.8)	121 (50.4)
Interpersonal sensibility	123 (51.3)	157 (65.4)
Paranoid ideation	111 (46.3)	153 (63.8)
Obsessive compulsive	98 (40.8)	144 (60.0)
Anxiety	73 (30.4)	115 (47.9)
Phobia	37 (15.4)	74 (30.8)
Psychoticism	48 (20.0)	92 (38.3)

P<0.001 for each item

In Covid-19 group, the incidence of psychological symptoms was significantly higher in men compared to women and in single patients compared to married patients (p<0.001; Table 3). But other demographic variables did not make a significant difference in the incidence of psychological symptoms (p>0.05).

Table 3) Comparing the frequency distribution of psychological symptoms in patients with Covid-19 based on gender and marital status

SCL-90-R items	Gender		Marital status	
	Male	Female	Married	Single
Depression	73 (52.5)	66 (47.5)	51 (36.7)	88 (63.3)
Anger-hostility	48 (57.8)	35 (42.2)	32 (38.5)	51 (61.5)
Somatization	69 (57.0)	52 (43.0)	41 (34.0)	80 (66.0)
Interpersonal sensibility	88 (54.7)	73 (45.3)	61 (38.8)	96 (61.2)
Paranoid ideation	83 (54.2)	70 (45.8)	60 (39.2)	93 (60.8)
Obsessive compulsive	81 (56.2)	63 (43.8)	56 (38.9)	88 (61.1)
Anxiety	75 (65.2)	40 (34.8)	37 (28.2)	78 (71.8)
Phobia	48 (64.9)	26 (35.1)	27 (36.5)	47 (63.5)
Psychoticism	60 (65.2)	32 (34.7)	30 (32.6)	62 (67.4)

P<0.001 for each item

Discussion

The present study was conducted to compare psychological disorders between patients with and without Covid-19 in Yasuj city. The findings of the present study showed an increase in nine psychological disorders in patients with Covid-19 compared to participants without Covid-19. These disorders were more common in women with Covid-19 than in men and in single people more than married people. Also, more psychological disorders were observed in patients whose family members died due to Covid-19.

Similar to the results of the present study, the study of Taquet *et al*. in USA showed a positive correlation between Covid-19 and mental disorders [24]. In a review by Dong and Bouey on Iran, Italy, India, Germany, Ecuador, Switzerland and South Korea from January to October 2020 in patients with Covid-19, the prevalence of anxiety was 16.6%, depression 37.3%, Post-Traumatic Stress Disorder (PTSD) 41.5%, insomnia 68.3%, somatization 36.5%, and fear 47.6% [25]. While in the current study, depression and anxiety in patients with Covid-19 were more compared to the results of the above studies, and it was expected that the frequency of these mental disorders will decrease with the increase of vaccination. Perhaps the reason for this difference is the accumulation of samples in several studies and the aggregation of these mental disorders in several countries, the difference in the type of study, the number of samples, and the measurement tools.

In the study of Paz *et al*. in patients with Covid-19 in the Galapagos Islands, the prevalence of anxiety was 4% and depression was 3.65% [26], which is lower compared to the present study and even other studies in other countries and the reason for this is less infection with Covid-19 in this country. But unlike the results of the present study, the highest prevalence of perceived stress and depression was in women. In the present study, men had more psychological disorders than women, which may be the reason for this difference in the impact of the Covid-19 pandemic on the job and income of men more than women; because most Iranian women are housewives and men are more responsible for the family's income than women.

The results of Zhou *et al*.'s study showed that the prevalence of anxiety, depression, and a combination of anxiety and depression symptoms in Chinese adolescents during the Covid-19 disease was 43.7%, 37.4%, and 31.3%, respectively, and was higher in women than men [27]. Also, in the study of Schluter *et al*., after 12 months of the first Covid-19 pandemic, the prevalence of general anxiety and major depression was 23.6% and 27.8%, respectively, and 57.9% suffered from both of these, which was less compared to the present study [28]. The prevalence of anxiety and depression in the present study in patients with Covid-19 in Iran was 47.9% and 57.9%, respectively. This difference can be due to the difference in age groups and the use of different questionnaires, and maybe if the combined symptoms were differentiated according to one of the two anxiety and depression disorders, there would be no difference between the percentage of these disorders.

In Allahyari *et al*.'s study, the prevalence of depression in the elderly during the Covid-19 pandemic was 45.4% [29] and in Hosseini Moghaddam *et al*.'s study, it was 55.8% [30]. In the above studies, Covid-19 infection was not considered to measure depressive disorder, although the study was conducted during the Covid-19 pandemic, and the elderly were even more likely to be quarantined and isolated than people of other ages. However, compared to the non-affected people in the present study, 35.0% of them had depression disorder, which can be due to old age.

In the present study, psychological disorders were more in singles, which is probably due to loneliness and less social connection and less family support, while married people have more family and social relationships and have more support from family, community and friends. These cases cause less nervous pressure and psychological variables are less affected. In the present study, there was no significant relationship between education level, place of residence and type of insurance with psychological disorders. But contrary to our results, in the studies of Ashrafi *et al*. and Bastami *et al*. [31, 32], neuropsychiatric disorders were related to the level of education. Probably, during the Covid-19 pandemic, quarantine and financial problems in most of the sufferers at any level of education and with any job caused nervous and psychological distress, and as a result, the level of education did not affect the results of our study.

The results of the present study indicated that the prevalence of psychological disorders was higher in people whose family members had died, which is probably due to the lack of a family member or even the fear of getting sick or dying. These results show the importance of primary mental health and psychosocial services in the treatment phase.

One of the limitations of this research was the impossibility of randomization for sampling, which can reduce the power of generalization. Also, the inability of people to attend due to the corona pandemic and as a result, the virtual completion of questionnaires was another limitation that incomplete questionnaires were replaced. Another limitation was the lack of confidence in the definitive diagnosis of corona cases in the participants.

Considering that the Covid-19 disease, in addition to harming physical health, also causes the occurrence of mental and neurological diseases, it seems necessary to identify people prone to suffering from mental disorders in order to improve mental health by psychological interventions such as training care and clinical skills. The findings indicate the need to develop psychological and psychiatric services for patients with Covid-19. People's anxiety and fear should not be ignored, but should be acknowledged and paid attention to. Therefore, it is suggested to periodically monitor psychiatric symptoms and provide psychosocial support and psychiatric counseling and treatment (if necessary) for the survivors of Covid-19 during the recovery phase. Also, it is necessary to design more practical psychological interventions and research projects to improve mental health during this disease and similar conditions, and it is suggested that a comprehensive mental crisis intervention program be prepared and implemented. Prospective studies are recommended to estimate the attribution of the risk of developing medical disorders in patients with Covid-19.

Conclusion

The frequency and chance of having psychological disorders in patients with Covid-19 is higher compared to healthy people.

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Ethical Permissions: This study was conducted in accordance with the Helsinki rules, and received the ethical code (IR.YUMS.REC.1400.167.) from the Ethics Committee of Yasuj University of Medical Sciences. Participation in the study was completely voluntary and there was no obligation to participate in the study. Also, the purpose of conducting the study was explained to the participants before collecting the information, and the participants were assured that their information would be completely confidential.

Conflicts of Interests: The authors had no conflicts of interest.

Authors' Contribution: Hashemi Mohammadabad N. (First author), Introduction author/ Methodologist/ Original researcher/ Discussion author (35%); Ghasemi P. (Second author), Introduction author/ Assistant/ Discussion author (30%); Kharamin Sh. (Third author), Methodologist/ Assistant/ Statistical analyst/ Discussion author (35%)

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