Survey of Psychopathological Profile in Cured Patients of COVID-19 Disease

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Abstract

Objective: The outbreak of Coronavirus disease 2019, as an epidemic widespread disease has led people to physical and psychological problems. Recent studies about the psychological effects of COVID-19 have shown that health anxiety and also negative emotions due to the COVID-19 epidemic have influenced patients' health both physically and mentally. This study aimed to survey the psychopathology and personality psychopathology profile of cured patients of COVID-19 disease and also the important factors related to the infectious and recovery process of patients in Iran.

Method: The research sample was 30 cured patients of COVID-19 who were selected voluntarily and answered the Minnesota Multiphasic Personality Inventory- 2nd Restructured Form (MMPI-2RF) questionnaire.

Results: The study showed that cured patients of COVID-19 suffered from demoralization, low positive emotions, ideas of persecution, and somatic complaints. The study also showed that cured patients of COVID-19 disease suffered from anxiety and behavioral restricting fears in assessing the patient's specific problems.

Conclusion: Anxiety, depression, negative emotions, and also low positive emotions are important factors in the infectious and also the recovering process of COVID-19 disease. As the negative emotions and fears are important factors in infectious to COVID-19, self-control, and normality in the psychopathological profile are important factors in recovering process too.

Keywords: COVID-19 Patients, Psychopathological Profile, Personality Psychopathology, Psychoneuroimmunology.

Introduction

Psychological processes, personality traits, psychopathological factors, and negative emotions such as anxiety, fear, and sadness are important factors that directly and indirectly influence the individuals' physical and mental health. They can affect profoundly the infectious, treatment, and recovery processes of many biological illnesses (Madelynne & Chilcot, 2020). Among the mentioned factors, stress and anxiety also affect the function of the immune system and consequently the individual's health seriously (Shahyad & Mohammadi, 2020). An important study in this field was conducted in the year 2003 by Cons and Ebrecht whose results showed that stress can cause immune system deficiencies. Also, high levels of stress can cause immune system dysfunctions and can afflict people to infectious diseases or other diseases including autoimmune diseases (Serafini, Parmigiani, Amerio, Sher & Amore, 2020).

In the field of health psychology, the relationship between environmental stressors and mental health has always been an increasingly important issue and health psychologists have always been searching

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for the causal relationship between stressors and mental health to improve social and individual mental health (Taylor, 2011).

In addition, the field of psychoneuroimmunology has become one of the applied and interdisciplinary fields of study that investigates the interaction between the central nervous system, endocrine system, and immune system and how psychological stressors influence these three fundamental systems (Sadock, Sadock & Kaplan, 2014) and states that environmental stressors produce negative feedback thorough the human body which disrupts the body's vital balance and also causes disturbances in homeostasis (Segerstrom & Miller, 2004).

Research showed that the incidence of disorders such as respiratory diseases due to severe physical problems and reduced lifestyle quality of patients causes health anxiety (Wu & McGoogan, 2020). By assessing psychopathology through the personality profile, practical information about physical illnesses such as psychosomatic illnesses (RaadManesh & Shafiei, 2005) and immune system deficiencies such as AIDS can be provided to health psychologists.

Among these problems, coronaviruses, including COVID-19 disease, are a large group of viruses that can infect both human and animals widely (NHC, 2020). A wide range of coronaviruses have been identified so far that can cause a range of respiratory tract infections and respiratory problems and even death in humans, ranging from Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (WHO, 2020). The newly discovered coronavirus which is the causative factor of COVID-19 disease was unknown before the epidemic outbreak in December 2019 in the city of Wuhan, China (Mccallum, 2020). Fever, fatigue, and dry cough are the most common symptoms of COVID-19 disease, and some patients may have other symptoms such as pain and bruising, stuffy nose, running nose, sore throat, or diarrhea symptoms that start gradually and are mild (WHO, 2020).

Emphasizing that the outbreak of COVID-19 disease has left terrible consequences, different approaches must be observed to adopt its biological, sociological, and psychological dimensions in research fields (Chen, Liang, Guo & Fei, 2020). Although much research focused on patient's anxiety and negative emotions (Asli-Azad, Farhadi & Khaki, 2021), during an epidemic of a disease such as a coronavirus, besides the disruption of daily activities, the fear of infection and death also causes healthy people to become anxious about the disease (Alizadeh-fard & Saffarinia, 2019).

In this regard, as the COVID-19 disease is associated with psychological processes, psychopathological factors, negative emotions, and environmental stressors (Alizadeh-fard & Alipour, 2021), and these factors can affect infection, treatment, and recovery of COVID-19 disease, this study attempted to examine the psychopathological profiles of COVID-19 treatment by using Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-rf) and also the vital factors in the successful treatment of COVID-19 disease, and so the research questions are:

1- How does the psychopathological scales profile (3 High-Order Dysfunction Scales and 9 Restructured Clinical Scales) cure the patients infected with COVID-19 disease?

2- How does the Specific Problems Scales profile (5 Somatic-Cognitive Scales, 9 Internalizing Scales and 6 Externalizing Scales) treat patients with COVID-19 disease?

3- How do the Five Personality Psychopathology (PSY-5) profiles influence the cured patients of COVID-19 disease?

Method

Participants

The statistical population of the research consists

of all patients with COVID-19 among whom 30 patients (17 males, 13 females), in the age range of 24 to 45 were selected from Masih Daneshvari Hospital in Tehran, Firooz Abadi Hospital in ShahreRey, and Imam Reza Hospital in Eslamshahr by targeted, convenience, and voluntarily sampling methods. The participants were informed of the study and its purposes

Procedure

The present research is a survey that emphasized the existing situation in personality and psychopathology profiles of cured patients of COVID-19 disease and was aimed at the identification and description of the research group personality profile (Bairagi & Munot, 2019).

Ethical Statement

In this research, attempts have been made to observe ethical considerations. As only the necessary information of participants was used in the research, the participants were informed that they have full authority to participate in the research.

Measures

In this research, the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2RF) was used to collect data. The MMPI-2-RF is a 338-question inventory that was published in 2008 by Tellegen and Ben-Porath at the Minnesota University (Kamkari & Shokrzadeh, 2016). The MMPI-2RF has 338 items, 8 validity scales, 3 high-order dysfunctions scales, 9 restructured clinical scales, 5 somatic-cognitive scales, 9 internalizing scales, 4 externalizing scales, 5 interpersonal scales, 2 interest scales, and 5 personality psychopathology scales (Ben-Porath & Tellegen, 2011). According to the results of the confirmatory factor analysis and using the LISREL software, it was found that the instrument has acceptable and desired construct validity. In addition, the psychiatric diagnoses and parallel instruments have shown that MMPI-2RF has high criterion validity and all 50 scales of MMPI-2RF have more than 80% reliability coefficient (Shokrzadeh & Daremi, 2019).

The instrument was translated and adapted in Iran in 2009 by Kamkari and Shokrzadeh. The population of their study was athletes and employees of various organizations including municipality, police, and citizens living in Tehran and other cities.

Diagnostic validity is one of the important validities

Table 1. one-sample T test for survey of psychopathological scales in cured patients of COVID-19 disease

High-Order Scales and Restructured Clinical Scales	Theoretical M	Empirical M	STD	df	t	Sig	Effect size
Emotional/Internalizing dysfunction	65	60.83	14.09	29	-1.61	0.116	0.22
Thought Dysfunction	65	60.43	11.03	29	-2.26	0.031	0.26
Behavior/Externalizing Dysfunction	65	53.6	10.42	29	-5.98	0.000	0.41
Demoralization	65	61.9	13.87	29	-1.22	0.231	0.02
Somatic Complaints	65	68.63	14.33	29	-1.38	0.176	0.02
Low Positive Emotions	65	66.03	15.21	29	0.37	0.713	0.1
Cynicism	65	54.83	12.47	229	-4.46	0.000	0.36
Antisocial Behavior	65	51.67	11.26	29	-6.48	0.000	0.42
Ideas of Persecution	65	62.1	10.72	29	-1.48	0.149	0.02
Dysfunctional Negative Emotions	65	58.33	12.11	29	-3.01	0.005	0.3
Aberrant Experiences	65	57.53	10.82	29	-3.77	0.001	0.33
Hypomanic Activation	65	48.57	10.7	29	-8.41	0.000	0.46

in diagnostic tests which focuses on the accuracy, appropriateness, and applicability of diagnostic tools (Paul, Tom & Hughes, 2018). Among the validation studies on this instrument, we can refer to the study of Kamkari, Shokrzade, Moradian Zand, and Kiakajouri by the title of psychometric properties of MMPI-2-RF that showed MMPI-2-R-F was valid and reliable in the patients with AIDS (Kamkari, Shokrzadeh, MoradianZand & Kiakajouri, 2016).

that thought and behavioral dysfunctions are lower than expected-value in cured patients with COVID-19 disease, while there was no significant difference at (0/05) level of significance between the empirical mean and theoretical mean in emotional/internalizing dysfunction and emotional/internalizing dysfunction is at an equal level of expected value in the cured patients with COVID-19.

Also, findings from table 1 showed that out of

Table 2.one-sample T test for survey of specific problem scales in cured patients with COVID-19

Specific Problems Scales	Theoretical Mean	Empirical Mean	Std.Deviation	df	t	Sig	Effect Size
Malaise	65	65.67	15.15	29	0.24	0.811	0.08
Gastrointestinal complaints	65	70.47	16.95	29	1.76	0.088	0.22
Head pain complaints	65	61.8	12.94	29	-1.35	0.186	0.2
Neurological complaints	65	69.2	13.41	29	1.71	0.097	0.22
Cognitive complaints	65	66.33	13.04	29	0.56	0.580	0.1
Suicidal/death ideation	65	58.27	15.41	29	-2.39	0.023	0.26
Helplessness/Hopelessness	65	58.20	17.62	29	-2.11	0.043	0.24
Self-doubt	65	56.00	13.02	29	-3.78	0.01	0.33
Inefficacy	65	59.7	11.02	29	-2.63	0.013	0.22
Stress/worry	65	56.37	10.62	29	-4.45	0.000	0.36
Anxiety	65	64.2	19.10	29	-0.22	0.820	0.1
Anger proneness	65	55.37	11.35	29	-4.64	0.000	0.36
Behavior-Restricting fears	65	66.8	18.39	29	0.53	0.596	0.1
Multiple specific fears	65	49.33	7.27	29	-11.78	0.000	0.52
Juvenile conduct problems	65	51.83	9.57	29	-7.53	0.000	0.44
Substance abuse	65	49.17	10.27	29	-8.44	0.000	0.54
Aggression	65	53.87	11.66	29	-5.22	0.000	0.38
Activation	65	45.83	13.04	29	-8.04	0.000	0.45

Results

3 High-Order dysfunction scales and 9 restructured clinical scales

According to table 1 and the obtained t-value, there is a significant difference between the empirical mean and the theoretical mean in the dysfunction scale at (0/01) and behavioral dysfunction at (0.05) in the three high-order dysfunction scales and the empirical mean in the mentioned scales is lower than the theoretical mean. It can be concluded

9 scales, in 5 restructured clinical scales, there is a significant difference at the level of 0/01 in cynicism, antisocial behavior, dysfunctional negative emotions, aberrant experiences, and hypomanic activation, and as the empirical mean is lower than the theoretical mean in mentioned scales, it can be concluded that mentioned features are lower than expected-value in cured patients with COVID-19 disease. Also, there was no significant difference at 0.05 level in demoralization, somatic

Table 3. one-sample T test for survey of personality psychopathology scales in cured patients of COVID-19 disease

Personality Psychopathology Scales	Theoretical Mean	Empirical Mean	Std.Deviation	df	t	Sig	Effect size
Aggressiveness	65	45.2	7.77	29	-13.94	0.000	0.56
Psychoticism	65	60.77	11.57	29	-1.93	0.063	0.24
Dis-constraint	65	51.47	9.74	29	-7.60	0.000	0.44
Negative emotionally/ neuroticism	65	60.33	12.33	29	-2.07	0.047	0.24
Introversion/low positive emotionally	65	58.27	14.82	29	-2.48	0.019	0.26

complaints, low positive emotions, and ideas of persecution scales, which shows the mentioned features exist equally as expected-value in cured patients with COVID-19 disease.

Specific Problems Scales

The findings from Table 2 show that in somatic/cognitive scales, there was no significant difference at the 0/05 level in any scale, so, as the empirical mean is at an equal level with the expected value in somatic/cognitive scales, the mentioned findings indicate that cured patients with COVID-19 disease suffer from malaise, gastrointestinal, head pain complaints, neurological complaints, and cognitive complaints.

In internalizing scales according to obtained t-value, there is a significant difference at 0.01 level in self-doubt, inefficacy, stress/worry, anger proneness, multiple specific fears at 0.05 alevel in death beliefs, and helplessness/hopelessness scales between the empirical mean and theoretical mean. As the empirical mean in the mentioned scales is lower than the theoretical mean, it can be concluded that problems related to mentioned scales are lower than the expected value in cured patients with COVID-19 disease. But as is shown in table 2, there is no significant difference at 0.05 level in anxiety and behavior-restricting fears, so it can be concluded that the value of anxiety and

behavior-restricting fears is equal to the average level of the expected-value scale.

Also on externalizing scales, there is a significant difference at 0.01 level in juvenile conduct problems, substance abuse, aggression, and activation scales, and as the empirical mean in these scales is lower than the theoretical mean, the value of mentioned scales is lower than the average level (expected value) in cured patients with COVID-19 disease.

Personality Psychopathology Five (PSY-5) Scales

According to table 3 and obtained t-value of personality psychopathology scales, there is a significant difference between empirical mean and theoretical mean at 0.01 level in aggressiveness and dis-constraint at 0/05 level in psychoticism, negative emotionally /neuroticism, and introversion/low positive emotionally, and as the empirical mean is lower than theoretical mean, it can be concluded that patients with COVID-19 disease are normal in personality psychopathology scales.

Discussion and Conclusion

In the present study which examined the psychopathology profile of COVID-19 patients, the results showed that cured patients with COVID-19 disease are considered normal in terms of psychopathology dysfunctions (behavioral/externalizing dysfunction and thought dysfunction)

and personality psychopathology.

According to a few studies on epidemiological illnesses, especially on COVID-19 surveys, other research can be done on the psychological effects of negative emotions on physical illnesses.

Environmental awareness and environmental control, and also optimism are important factors affecting well-being and mental health (Morison, 2016), and critical conditions can endanger mental health and threaten physical health as well. Regarding the epidemic of COVID-19 disease, the existing situation also has threatened the community's mental health and can cause psychopathologies and physical illnesses (Rubin & Wesley, 2020).

In such situations, psychological factors, such as negative emotions, especially fear and anxiety, as well as the lack of psychological secureness that Maslow refers to (Asli-Azad, Farhadi, & Khaki, 2021) as the second order of human needs (Alizadefard & Saffarinia, 2019) can play a key role in infectious and recovering physical illnesses (Rubin & Wesley, 2020).

In this regard, as the results of the present study showed, cured patients of COVID-19 disease are normal on psychopathology and personality psychopathology scales, and it can be concluded that being normal in the mentioned fields is an important factor in recovering from physical illnesses.

The findings of this study are in line with studies done by Rubin and Wessely on the psychological effects of quarantining a city, Alizadeh Fard and Saffarinia on the prediction of mental health based on the anxiety and the social cohesion caused by Coronavirus, Shigemura, et al. on the public responses to the novel 2019 coronavirus (2019-nCoV) in Japan and mental health consequences and target populations, Farahati on the psychological consequences of coronavirus

in society, Asmundson, et al. on the influence of health anxiety on responses to viral outbreaks like COVID-19, Huang, Yan, Zhao, Ning on the generalized anxiety disorder, depressive symptoms, and sleep quality during COVID-19 epidemic in China.

Therefore, according to the research findings and the basis of mental-health theories, the absence of anxiety and depression and also the absence of disturbances in psychopathological and personality psychopathological profiles can be one of the possible factors for successful treatment of COVID-19 disease. So it is suggested that, in addition to physical-medical treatments used for patients, psychological services such as online counseling be provided to the patients suffering from COVID-19 disease.

Limitation

As the present study was conducted on cured patients of coronavirus and due to the physical side effects of the disease, and also the exhaustion, a few samples were volunteered to participate in the study. An additional limitation is that because of little knowledge of COVID-19 disease, and lack of awareness, researchers were unable to make an accurate definition of the disease.

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